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Alienist and Neurologist

A QUARTERLY JOURNAL

OF

Scientific, Clinical and Forensic

Psychiatry and Neurology.

Intended especially to subserve the wants of the General Practitioner of Medicine.

"Quantam ego quidem video motus morbosi fere omnes a motibus in systemate nervorum ita pendent, ut morbi fere omnes quodammodo Nervosi dici queant."—*Cullen's Nosology: Book II,, p. 181—Edinburgh Ed. 1780.*

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C. H. HUGHES, M. D.,

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DAVID S. BOOTH, M. D.,

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CONTRIBUTORS AND COLLABORATORS.

VOLUME XIX.

ALBERT S. ASHMEAD,
New York.

W. F. BECKER,
Milwaukee.

DAVID S. BOOTH,
St. Louis.

SUSANNA P. BOYLE,
Toronto, Canada.

D. R. BROWER,
Chicago.

SANGER BROWN,
Chicago.

L. BRUNS,
Hanover, Germany.

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London, Eng.

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DR. A. HOCHE,
Strassburg.

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THE

ALIENIST AND NEUROLOGIST.

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ORIGINAL CONTRIBUTIONS.

THE EARLY DIAGNOSIS OF PROGRESSIVE PARESIS.*

By DR. HOCHE, Strassburg.

Private Docent in Psychiatry and First Assistant of the Psychiatric Clinic at Strassburg.

EXPERIENCE teaches that in the majority of cases the beginning of progressive paresis is not recognized by the attending physician. It may be said that most paretics, when received at the psychiatric clinic or insane hospital, have passed through a stage of weeks, months or even longer duration, in which, because an incorrect or no diagnosis was made, they were deprived, to their own injury and that of their families, of such professional advice and direction as their already recognizable morbid mental condition should have received. Of the reasons for this, notorious deficiency in diagnostic ability of numerous physicians—the small degree of psychiatric knowledge, the

*Translated by Dr. W. Alfred McCorn, Assistant Physician Illinois Eastern Hospital for Insane.

slight practical perception for morbid mental states—will first begin to disappear after a change is effected in the present method of medical instruction and examination; the other exists in the real special difficulties, which are met with in the early diagnosis of progressive paresis in many cases. The expert psychiater also finds it quite often necessary, especially in his ambulating cases, to record the diagnosis: "progressive paresis," with an interrogation mark and the proviso that repeated examinations and observation of the further course will furnish the definite decision. In such doubtful cases a certain diagnosis is, of course, not to be expected of the practitioner; but it can be demanded of the family physician, the physician in official positions, as well as the indications for trachectomy or for perforation of the living child, etc., that he must have an opinion as to the bearing of certain physical and mental changes, which generally precede with a greater regularity than suspicious indications, the outbreak of the incurable mental disorder.

Herein are embraced positive facts. To-day even the opinion occasionally asserted by academic defenders of clinical disciplines, that for deciding the question whether anyone is mentally sound or insane the "healthy human understanding" suffices, in its consequences revenges itself severely on the patients in the early stage of progressive paresis, who are so unfortunate as to have to appeal to the "healthy human understanding" of their physician in their psychical disease.

The numerous masks under which this disorder may occur in its beginning, the similarity which the incipient forms of severe organic disease of the nervous system present to other relatively harmless functional affections, make it essential to know exactly those differential diagnostic signs, which almost without exception permit the physician to make the diagnosis so early that serious social injuries are spared the patient and his relatives and to make it with such subjective certainty that the responsibility for the institution of thorough measures (removal from office or society, commitment to an institution, disfranchisement, etc.) may be undertaken.

In the following pages I will attempt to present the present state of our knowledge in the diagnosis of this most practically important early stage of progressive paresis in the most concise brevity.

Exhaustive literary references, which would occupy too much space for no reason as to the material to be considered, are omitted; also restriction will be exercised in the choice of points to be discussed, this depending on their practicability.

What are we to understand by the early diagnosis of progressive paresis?

To be able to limit our task in this respect we must first briefly refer to the question as to the nature* of progressive paresis.

Of the influences whose mode of action we know only imperfectly and of whose relative frequency opinions disagree (syphilis, head traumatisms, physical and mental excesses), the clinical type most often developed in middle age, rarely earlier or later, three or four times more frequently in men than in women, which is slowly progressive or abrupt, whose principal symptom is the deterioration of the intellectual force even advancing to dementia, with simultaneous psychical anomalies recognizable in all.

Coincident with this progressive development of a dementia numerous motor and sensory symptoms of irritation and degeneration occur, in whose distribution to almost all parts of the nervous system the anatomical character of the disease is expressed.

The more rapid or slower course of the disease is practically to be regarded as incurable and usually terminates fatally in a few years from the time a positive diagnosis is possible; the total duration usually exceeds the popular statement of "two to three years."

As an anatomical basis we assume a chronic, apparently primary atrophy of the nerve elements, which is unequally distributed to the cranial contents, the spinal

*The definition of the disease which the latest monograph gives (v. Krafft-Ebing in Nothnagel's *Specielier Pathologie und Therapie*. Bd. IX; Theil II; 1894, page 5) is by no means to be regarded as exhaustive.

cord and the peripheral portions of the nervous system. Of all the common organic diseases of the nervous system the anatomical process of progressive paresis possesses the greatest extent.

The extraordinary diversity of the clinical types, which the incipient stage of the disease presents especially, is explained by the difference in the functional value of the part usually affected, by the diverse occurrence of the degeneration process in this or that part with respect to time and the varying *tempo* of its advancement.

The most constant anatomical symptom, the extensive degeneration of the nerve elements of the cerebral cortex, corresponds to the most constant clinical symptom, the progressive mental enfeeblement.

In many cases this purely progressive mental enfeeblement is the prominent psychical symptom until the end; in other cases active dispositional anomalies in the sense of exalted or depressive emotions of all grades accompany it, coincident with concepts of corresponding import (grandiose delusions, hypochondriacal and melancholiac delusions), more often sense deceptions also; markedly intensified emotions occur in the states of so-called psychical excitement.

The majority of the cases present peculiar, episodical attacks, possibly occurring in all stages of the disease, known as the "paretic seizures," which in general manifest wide differences; they paroxysmally induce clouding of the consciousness, varying from the mildest, momentarily unnoticed absence or very temporary attacks of vertigo, even to severe coma, with or without convulsions, frequently with residuary, but usually temporary, motor and sensory manifestations of defect, and almost always followed by a further sinking of the intellectual level.

Perhaps some of the previously mentioned episodical states of psychical excitement belong etiologically to these "seizures," whose anatomical basis is to be regarded as temporary circulatory disturbances in the brain or small hemorrhages, or also locally accelerated degeneration of the nerve elements.

The paretic changes in speech and writing are a com-

bination of intellectual and purely motor disturbances; to the purely motor belong the pareses of the muscles of the face, tongue, pharynx, larynx and extremities accompanied by tremor and finer or courser twitchings.

The weakness of the latter occurs in cases dependent on cerebral changes in form of unilateral or bilateral hemiparesis; the motor derangements of the extremities, of the legs especially, due to morbid processes in the spinal cord, manifest manifold conditions, which depend on the topographical distribution of the anatomical processes.

There is found (Fürstner) in 62% of the cases a disease of the lateral and posterior columns, usually with marked implication of the first; in 24% a disease of the posterior columns only and in 14% that of the lateral columns alone.

Accordingly the purely spastic symptom complex in the lower extremities with active tendon reflexes and dorsal clonus is frequent, at least somewhat more frequent the ataxic paraparesis with absent patellar reflex, the most frequent the so-called paretic gait usually accompanied at first by increased, then absent, reflexes, which is due to the paresis and disorders of co-ordination, and in whose origin cerebral influences may co-operate.

Circumscribed simple or degenerative muscular atrophy, especially in the upper extremities, may be of spinal or peripheral origin. Localized sensory degenerative manifestations in the legs, and possibly violent pains, are a consequence of disease of the posterior roots and posterior columns of the spinal cord; general anaesthesia or more frequently analgesia is of psychical origin, and due to defective apperception (loss of the faculty of attention). Disorders of the bladder and intestines owe their origin to the same defect in the cases where these anomales are not of spinal origin.

The significance of the disorders of innervation of the pupils, especially of the wanting reaction to light is that in them the early relatively slight, even scarcely perceptible central interruptions of conduction (by degenerative processes), become outwardly manifest in the complicate mechanism. For the pathological spinal process we possess the

correspondingly fine reaction in the condition of the patellar reflexes, in whose changes at least the influence of cerebral derangements may be concerned.

The diagnosis of a fully developed case of progressive paresis, in which many or the majority of the symptoms mentioned, are present, is made very easily and can only fail from gross ignorance or careless examination; but usually a less apparent prodromal stage precedes this well-marked condition, whose duration may be one to three years, possibly longer; indeed, we have reason to assume that the beginning of the anatomical process may have existed for years in a lingering manner, without these tangible symptoms directing the diagnosis in a definite direction.

Symptoms diagnostically very different belong to this prodromal stage. We know those, which supplementarily, after the disease has fully developed, acquire their significance as early paretic symptoms from which alone the diagnosis could not have been made earlier; we know others, "premonitory" (Sander) in the strict sense, which attain great early diagnostic and hence prognostic value by their presence before the beginning of paretic psychical enfeeblement can be proven or by the fact of their occurrence at a certain age, or certain other combinations to be considered later; finally we know those which in like manner belong to the prodromal as well as to the stage of the fully developed disease, whose presence may cause the bounds of both to appear as voluntary.

The symptoms belonging to the prodromal stage of progressive paresis in the broadest sense will be the subject of discussion; for the expert psychiater the description will seem to exceed the bounds of "early diagnosis;" but for the average condition of general medical practice, according to our present experiences, a correct diagnosis of progressive paresis, which is made in the prodromal stage, is as a rule a very early one.

It is best to begin with a discussion of the several early symptoms and thus add a differential diagnosis of the most common types in which the physician generally meets with the beginning progressive paresis.

A few brief remarks as to the significance and consequences of the early diagnosis may form the conclusion.

The very earliest signs which may precede the beginning of the abnormal psychical manifestations for ten years, are those belonging to the symptom complex of tabes, of which the most important are: Reflex pupillary immobility, absence of the patellar reflexes, lacerating pains, optic atrophy; hence arises the question whether in these cases it is not simply a matter of tabes, in whose course a progressive paresis is developed.

Thus the general question as to the relation of tabes and progressive paresis is entered upon and to avoid later obscurities and repetitions it is necessary to here briefly outline the point of view we will take in the question.

The majority of alienists see in progressive paresis an independent disease, which in a certain portion of the cases is developed in individuals already tabetic, and in another portion, without the typical clinical type of tabes needing to be present, the anatomical process in the spinal cord shows a distribution more or less identical with the tabetic; the rest of the cases, the majority, among which besides other things are found those accompanied by purely spastic manifestations, has nothing to do with tabes according to this opinion, in spite of several common organic nervous symptoms like the reflex pupillary immobility.

Contrary to this view is another theory, which has recently acquired an increasing number of followers in France and Germany, as it seems, namely, that an identical morbid process is at the foundation of tabes and progressive paresis, besides the common and exclusive etiology of the preceding syphilitic infection, which according to its localization causes the one or the other, or both combined, to appear, then, that in a certain measure every tabes is an incompletely developed paresis, or progressive paresis, represents one of the possible varieties of tabes.

At this time an exact proof of the one or the other theory cannot be adduced; if the second is accepted as correct, all its hypotheses, especially that of etiology, would better satisfy classification and theoretically simplify

matters; the unbiased estimation of the preceding facts, but especially the consideration of the clinical course affords no sufficient basis to justify for practical purposes the identification of tabes and progressive paresis; the truly complicated conditions are not readily explained by the theory of identity.

The following facts are the actual material in this question:

Tabes and progressive paresis in common are etiologically related to syphilis; differences of opinion exist as to their frequency.

Common to both, further, is the apparently primary degeneration of the nerve elements.

Progressive paresis is developed in the course of a certain number of cases of tabes, but which generally is of a peculiar form, from the slowness of its advancement and, psychologically, by the simple uncomplicated progressive dementia.

A certain portion of the cases diagnosable as progressive paresis manifest an affection of the posterior columns of the spinal cord; it is an open question whether it is topographically identical with the typical degeneration of the posterior columns of tabes.

The other degenerative spinal processes present in progressive paresis (disease of the lateral columns) are not found in simple cases of tabes; their dependence on cerebral influences (in a form of secondary degeneration) is not proven.

There is a large number of cases of progressive paresis, which anatomically and clinically do not possess the slightest similarity to tabes in their spinal symptoms.

Psychical derangements are developed quite often in old cases of tabes, but which do not belong to progressive paresis; simple dementia or hypochondriacal paranoia especially.

These facts make us, by ignoring all possible theoretical opinions, practically conform diagnostically, as well as prognostically, to the proposition that in tabes and progressive paresis we have two different forms of disease which

possess numerous chief points of contact and coincide in the same individuals in a series of cases.

Hence it is to our purpose to formulate the value of the early signs of progressive paresis belonging to the tabetic symptom complex: the so-called classic initial tabetic symptoms, reflex pupillary immobility, absence of the patellar reflexes, lacerating pains and optic atrophy, may likewise be the early symptoms of a progressive paresis later; but the suspicion of the latter is first justified when one or more of the general cerebral symptoms to be fully discussed later—especially change of character, lowered intelligence, disorders of speech, convulsions—are associated.

Following these preliminary remarks, the several early symptoms may now be briefly discussed.

Owing to their importance and frequency the derangements of the pupils must be given the first place.

They are found in more than half of the cases of progressive paresis, often many years before the first appearance of the psychical symptoms, and also in cases which later in their spinal disease are not of the posterior column type.

In almost no other symptom is a correct technique of examination so essential as in testing the condition of the pupils; in almost no other is the simplest rules so often violated.

In examining the pupils we consider chiefly their absolute size.

The possibility of a previous iritis, of the existing effect of atropine, opium or eserine is to be taken account of.

In general, the pupils are larger in children and women, as well as in anemic, sensitive, nervous individuals; they become smaller with advancing age.

Very small pupils of equal size are found as an early symptom of progressive paresis in conjunction with reflex pupillary immobility to be discussed later; very large and simultaneously immobile pupils hardly occur as an early symptom.

In judging the size of the pupils a diffuse light of medium intensity is indispensable, but above all a sym-

metrical position of the light with respect to both eyes (window).

This is equally necessary in determining differences in the size of the pupils; in a side illumination from a window, *e. g.*, in which one eye is in the shadow of the nose, a difference in the pupils is found in perfectly healthy persons.

Even a slight pupillary difference in symmetrical illumination, with light reaction retained, is not always a sign of an organic affection; it is quite often found alone or with other congenital asymmetries as one of the so-called signs of degeneration and possesses no more significance than these, yet in these cases is of theoretical interest.

It is further found, even without loss of the light reaction, as a temporary manifestation varying in its intensity or between the right and left, *e. g.;* in migrain, epilepsy, in nervous conditions following accidental injuries, in simple psychoses. The condition of the absolute size of the pupils and their difference in retained light reaction are far inferior in significance to the symptom of reflex pupillary immobility, *i. e.*; absence of contraction of the pupils to light with retention of mobility in accommodation and convergence.

The latter factor, the mobility retained as involuntary, differentiates reflex pupillary immobility from complete pupillary immobility due to peripheral lesion of the motor oculi, *e. g.*, in syphilitic meningitis.

The proof of reflex immobility signifies, according to the pathologico-anatomical considerations, that the central connections between the optic terminals and motor oculi nuclei, which serve to conduct the physiological reflex process, have been broken.

The prosensual frequency of those affections in which occasionally reflex pupillary immobility is observed (multiple sclerosis, especially localized tumors or hemorrhages) is slight in comparison to the number of cases of tabes and progressive paresis, whose classical early symptom is the reflex pupillary immobility.

"Sluggishness of the pupils" represents the transition from the normal condition of light reaction to the reflex immobility, a term, in whose employment circumspection is

requisite in pupils of small size, then in individuals approaching senility; the categories mentioned as possessors of specially large pupils, show a more prompt reaction than healthy men, even of middle age. We find sluggishness of the pupils as a pathological manifestation in different organic brain affections, especially in the numerous forms of hemorrhage or softening with dementia, etc., also in chronic alcoholism.

In the latter, what is important in differential diagnosis, the sluggish reaction often becomes normal again after a few weeks abstinence.

Reflex pupillary immobility and sluggishness are found in progressive paresis on one and both sides; in the earliest stages difference between the right and left as to promptness of reaction is almost the rule, and the diagnostic value of the absence of reflex contraction of one of the pupils is no less than the loss of this phenomenon on both sides.

Difference in the size of the pupils, even of slight degree, with simultaneous sluggish or wanting reaction on one side, is of ominous significance. The diagnostic proposition that, all recent, apparently functional, neuroses and psychoses in men of middle age (25-55) are suspicious as to progressive paresis by proving reflex pupillary immobility or difference in the pupils in undoubted sluggish reaction, indicates the importance of an exact examination of the pupils.

The examination as to quantity and quality of the light reaction demands not only a correct, but, if subjective certainty is to be attained, also uniform method; it does not suffice, as is so often seen, to briefly shade the eye to be examined, which is perhaps inspected in a dark corner of the room, with the hand held before it. Also the method of opening and closing the lid with the fingers is improper, because slight movements of the pupils may readily escape the examiner in consequence of the unavoidable movements of the bulb and the light reflex on the cornea occurring suddenly at the moment of opening the lid, while on the other hand the involuntary movement of accommodation of

the pupils occurring almost always simultaneously may deceive as to the light reaction.

The requirements which must be complied with for a reliable examination of the pupils, are, that the examiner can constantly and clearly see the pupils during the shading and illumination of the eye, and that at the moment of illumination movements of accommodation, as well as of convergence, do not occur in the eye examined.

The latter are not easily excluded in the insane.

The shading hand, whose removal suddenly subjects the retina to the light of the window, must not be held in the visual axis, otherwise the eye will accommodate to it, but the eye must be half covered from the side of the light; the patient looks past the examiner at a distant point, then at the moment of illumination or shortly after the contraction of the pupils is observed, or possibly the absence of this manifestation, reflex immobility.

In insufficient daylight it is best to arrange for a light behind the examiner's head, possibly a brightly burning match, so that the eye previously in the shadow is suddenly illuminated.

In spite of the questionable result do not neglect testing the light reaction in the dark-room by a lateral lens illumination. Experience teaches that the more carefully the pupils are examined the fewer become the cases in which—except in tabes and progressive paresis—true reflex pupillary immobility is found.

The examination of control in pupillary movement in form of involuntary motion in convergence and accommodation is so simple that the patient is told to look at the tip of his nose or at a distant object which can be quickly moved toward him; then very slight contraction of the pupils is often observed, which in accommodating for a distant point is replaced by dilatation.

The want of consensual light reaction, *i. e.*, the absence of contraction of one pupil when the other eye is illuminated, may be the first symptom of a pupillary disorder; in questionable cases it is to be sought for.

While reflex pupillary immobility with or without dif-

ferences in size of the pupils is peculiar to these cases of progressive paresis, which are not of the posterior columnar type, we meet with a number of other early signs as a rule only as an indication of a tabetic symptom-complex previously or simultaneously instituting the paresis, namely; lacerating pains, girdle sensation, analgesia of the legs, gastric or other crises, optic atrophy, paralysis of the eye muscles of a temporary character usually.

All that has been said of the symptoms is true as to the relation of tabes to progressive paresis. Lessened potency and mild vesical disorders are met with in the early stage without other tabetic symptoms.

The condition of the tendon reflexes, especially of the most practically important patellar reflex, demands a somewhat exhaustive discussion. It may be said in general, with the same precautions, its early diagnostic value depends on the fact that its definitely proven anomalies, for which careful examination is unable to furnish any other explanation, may suspicion paresis in any recent neurosis or psychosis, apparently functional, in men of middle age.

Of the quantitative changes the complete absence of the patellar reflex is the most diagnostically valuable, because it is an absolute quantity, while the different degrees of its increase in their estimation depend on the examiner's judgment.

In the latter, peripheral causes (muscular atrophy, neuritis, surgical diseases) are to be excluded before it is to be considered diagnostic evidence of a spinal disease; in the former, it is to be remembered that there is no normal quantity of the reflex muscular contraction of the quadriceps and also that in functional diseases exaggerated tendon reflexes occur.

To justify the assumption of an organic cause of increased patellar reflex, corroborative facts must exist, namely, muscular spasms in the lower extremities or the proof of an evident dorsal clonus. The occurrence of three or four quickly exhausting contractions in the tense peroneal muscle is not to be regarded as such in exact test, for it may occur in many surgical diseases accompanied by

muscular shortening, as also, *e. g.*, in neurasthenia or hysteria, etc.

But in consideration of these restrictive precautions the proof of an increased patellar reflex has the same diagnostic significance as that of its absence. Its absence proves, when peripheral causes are excluded, an interruption of the reflex arc in the spinal cord, which in progressive paresis is located most often, according to experience, in the posterior roots or posterior columns; increase proves the presence of pathological processes above the reflex arc and in the pyramidal tract to the extent of the ganglion cells of the motor region of the central convolutions, even to a plane lying above the level of the spinal reflex phenomenon for the patellar reflex that indicates the height of the dorsal and lumbar cord; in progressive paresis the lesion to which we refer the increased tendon reflex in the lower extremities, is located most frequently in the lateral pyramidal tract of the dorsal cord.

In respect to the cases of progressive paresis beginning as typical tabes, increased reflexes are more frequent than their absence in the early stages of the disease (in the later stages this is changed); the cases with wanting reflex predominate, and for the simple reason that in the cases constituting the majority of combined disease of the lateral and posterior columns the interruption of the reflex arc in the lumbar cord prevents the reflex increased effect of the disorder of the lateral column.

Unilateral changes, especially absence on one side, afford an important support in estimating the condition of the patellar reflex; if increased on one side the assumption of a somewhat earlier hemiplegia as reason for the increase depends on the proof of a simultaneous increase of the triceps tendon reflex on the same side, which is rarely wanting. A test of the patellar reflex, which in questionable cases demands care, should only be made on the bare leg; it is insufficient to strike a blow "in the region of the knee" through the trousers; when muscular contraction is insufficient to throw the lower thigh forwards the reflex can almost always be elicited by an at least perceptible or

sensible contraction of the quadriceps, its absence should only be asserted when the attention at the moment of testing is diverted from the phenomenon in the leg by the well-known procedure of re-enforcement.

To attain the Achilles tendon phenomenon, dorsal clonus, a certain technique is demanded; even a marked dorsal clonus may not be elicited owing to an awkward test. The recumbent patient's leg is supported with one hand in the popliteal space, with the other, which does not need to completely grasp the foot, in weak musculature, of the patient, with only two fingers a brief pressure upwards is made on the sole of the foot at the level of the small metatarsal bones, but without ceasing the pressure; if the organic conditions exist for the occurrence of the dorsal clonus, a series of rapidly repeated contractions of the peroneal muscle, like the play of Wagner's hammer of the induction apparatus, at once begins, causing a plantar flexion of the foot; according to the degree of excitability, the phenomenon lasts longer or shorter, until the reflex is finally exhausted. In the milder forms of dorsal clonus this exhaustion occasionally occurs so quickly that in its demonstration the second or third attempt fails, while a well marked dorsal clonus was elicited the first time.

In testing the tendon reflexes it is essential that a uniform method be practiced to secure an objectively correct and subjectively certain judgment.

In early diagnostic value the "paretic seizures" are very closely related to the reflex pupillary immobility and the condition of the tendon reflexes.

The serious conditions, increasing to status epilepticus, which are peculiar to the seizures of the later stages, and quite often are the direct cause of the patient's death, are scarcely ever found in the prodromal stage.

The most frequent are the epileptiform seizures in the form of petit mal; palor, syncope, sudden feeling of vertigo, brief loss of consciousness, or the mildest apoplectiform attacks, namely, temporary paresis occurring suddenly with vertigo or at night while asleep, possibly with very tran-

sient impairment of speech or a sudden feeling of numbness of one side of the body, even of one extremity only.

Between the epileptiform and apoplectiform seizures, which have essentially a common genesis, there are clinical transitions, which make a strict separation appear voluntary.

For the differential diagnosis of the early paretic epileptiform attacks from those common to genuine epilepsy, the following points are to be considered:

The so-called epilepsia tarda, *i. e.*, the first appearance of one of the real attacks not belonging symptomatically to epilepsy, in middle age, is practically of little account owing to its great rarity.

At this age symptomatic epileptic attacks are observed; after injuries to the head, in chronic alcoholism, in syphilitic and other neoplasms of the brain and its membranes, as well as in cases of premature atheromatous changes in the vessels of the brain.

As these diseases can be excluded by the anamnesis, by careful investigation of the characteristic attendant symptoms, possibly by the results of treatment, as in syphilitic affections, hence epileptiform seizures at this stage of life must awaken the suspicion of incipient progressive paresis, which becomes almost a certainty, when reflex pupillary immobility or the early psychical changes of paresis, to be mentioned later, are traceable.

In epileptiform seizures of this age, paresis as a cause for the existing disorder is perhaps more frequent than all the morbid conditions previously mentioned.

Violent headache, especially in form of migrain, occurring periodically in the prodromal stage, perhaps preferably that form known as "orbital migrain," is very closely related to the epileptiform seizures. As true migrain is generally common to the family or hereditary, beginning almost without exception in the individual's youth, so first and then repeated occurrence of attacks of migrain in middle age is a suspicious symptom, which may occur not only in progressive paresis, but also in tabes, epilepsy and in brain tumors.

If such an attack of migrain does not in itself afford a

definite diagnosis, it is at least a valuable warning signal for the physician and must not be put aside with the assumption that it is a matter of a harmless functional disease. In the presence of an abnormal psychical condition questionable as to its import, such attacks of migrain may possibly turn the scale in the direction of a diagnosis of progressive paresis.

The early apoplectiform seizures are distinguished from other forms of hemiplegia caused by hemorrhage, embolism, softening or tumors by their usually abortive character at first, *i. e.*, by their brevity and possibly slight extent of the paretic manifestations, but then also by the fact that even a repetition of the attack on the same side of the body does not always need to leave behind manifestations of gross disorganization.

Frequently repeated apoplectiform seizures, which are attended by affections of the right extremities, generally present aphasic or paraphasic disorders of speech as sequelæ of somewhat longer duration.

Paretics in the early stage of the disease who have had an apoplectiform attack, often know nothing of an existing paresis, while simultaneous sensations of numbness, etc., worry them, or they are ignorant of an attack perhaps occurring at night, whose motor sequelæ—the paresis—lead them to consult a physician.

The early apoplectiform seizures may soon alternate with premonitory minute apoplexities, which in diseases of the cerebral vessels quite often precede severe hemiplegia, and the certain differential diagnosis between these two forms of disease is often impossible for a time; seizures of this sort, which occur in the beginning of the thirties, are always a suspicious paretic symptom, for at this age, except in syphilitic disease of the cerebral vessels and arterio-sclerotic contracted kidney, apoplectiform conditions due to vascular changes rarely occur.

For the diagnosis of paresis it is true that apoplectiform seizures, which have no evident etiology, turn the scale in favor of the assumption of paresis.

The numerous modifications of the early paretic seiz-

ures occurring in practice are by no means exhausted in what has been said; the diagnostic significance of the first occurrence in middle age is common to all special forms of manifestation, and if it is, at least in men, "only a faint," which occurs in apparent health and without a perceptible cause.

The examining physician must ask about these things, as the patients forget these episodes, or, just as their relatives usually do, refer them to the manifestations or subjective troubles, which cause them to seek medical aid.

These symptoms, which not exclusively, but yet frequently in point of time and in causative connection, follow the seizures, the apoplectiform especially, the more or less extensive motor pareses are naturally to be mentioned after the early paretic seizures. In the early stage it is usually less a matter of marked variation in mere strength than of derangements of the finer forms of motion, hence for diagnosis the muscles are to be considered which present slight variations, either in respect to the previous condition or in comparison between the right and left, namely, the mimetic musculature, as also the musculature of the tongue and larynx. As these groups of muscles combine their action in the formation of speech, we find among the early symptoms derangements of speech, in so far as it is a matter of the processes of articulation.

The motor pareses in progressive paresis are usually accompanied by symptoms of mild irritation, tremor with spasms; perhaps in these symptoms of irritation is expressed that in the functional cerebral processes it is usually a matter of an active progressive process, not of a single terminal event (just as in spinal affections the fibrillary muscular spasms possess diagnostic significance).

Of the motor pareses variations in the innervation of the facial nerve are one of the most common early symptoms.

In them, as in the slight variations in the size of the pupils, precautions are to be exercised in diagnostic valuation.

Few faces of well persons permit exact test as to the determination of asymmetry; in epileptics, in individuals

hereditarily predisposed and also without this factor we find asymmetries of the facial bones, and consequently, or also independently, asymmetries of the mimetic action are so often found that it is necessary to ascribe diagnostic significance to slight facial variations only when tremor or spasms simultaneously exist in the affected side or a correspondingly localized apoplectiform seizure is anamnestically provable (just as we have seen slight variation in the pupils become of diagnostic value through another symptom, pupillary sluggishness or immobility). The symptoms of irritation of the mimetic musculature occur the most plainly in speech or protrusion of the tongue, and especially in the zygomatic and chin muscles; contrary to the extensive tic-like spasms, as we see them, *e. g.*, in many neurasthenics or in some cases of neuroses after accidents; in these early paretic symptoms of irritation in the facial muscles it is only a matter of a brief vibration in this region, a short mimetic "heat-lightening," best comparable to the short restless spasms which are seen about the mouth of healthy people when they speak during emotion. Latent mimetic symptoms of irritation are usually plainly recognized emotions (fortunately it is usually easy to produce voluntarily emotions in the patient on examination).

Vibrations of the facial muscles are as often seen in alcoholics as in paretics.

Deviations of the tongue to the left or right are found early, but also after seizures; severe pareses with inability to protrude the tongue belong to the later stages.

Tremor of the tongue and the fibrillary restlessness of its musculature, as well as the tremor of the hands, are usually not to be differentiated from the corresponding appearance in severe neurasthenia or chronic alcoholism. However, tremor becomes of greater diagnostic significance, when after a seizure it occurs only in the affected side of the body. Changes in the voice, *e. g.*, in timbre, correspond for the larynx in diagnostic significance to the tremor and spasms of the visible musculature; a peculiar "bleating" not previously present, in the perhaps monotonous voice most commonly occurs early, especially during emotion.

The special "speech derangements," *i. e.*, the articulatory disorders due to paresis and lack of co-ordination, are usually very early provable in their first indications. Therefore they are to be especially considered, possibly by the employment of difficult combinations of words, but which do not necessarily consist of articulatory snares, like many of the sentences usually recommended (the majority of nervous persons stumble over these, particularly during a medical examination).

The best method of quickly becoming informed as to the speech is by having the patient read aloud.

In a diagnostic estimation of a definite articulatory speech derangement it is to be remembered that numerous excitable persons hereditarily predisposed, and neurasthenics with acquired excitability, have mild articulatory difficulties during emotion.

Whereas an articulatory impediment of speech of recent origin, according to the statements of relatives, especially after a subjective seizure, is of greater diagnostic importance.

In the early changes in writing it is a matter of two differently operating causes: one consists possibly of abnormal innervation (paresis and manifestations of irritation) in the hand and forearm, the other is psychical (lack of attention, loss of memory, lowered æsthetic feelings).

Thus result, often quite early, very characteristic written evidences in the irregularly, hastily formed letters, unequal deviations from the line, blots, etc., besides absence of punctuation, erasures, omission or duplication of words, etc. In questionable cases where beginning paresis is suspected, for examination it is essential that specimens of the patient's recent and earlier writing be submitted, especially of those individuals who by occupation were accustomed to write clearly and accurately (school teachers, bank officials, government clerks, etc.) if valuable conclusions are to be expected.

In ignorant persons who are not accustomed to writing, little of early diagnostic value is to be derived from their writing.

The writing of chronic alcoholics may often have the

above characteristics, and is scarcely to be distinguished from that of the early stage of paresis.

All the early symptoms previously mentioned are organic and capable of being subjectively determined; ere we pass to the discussion of the early psychical anomalies a few of the more common subjective symptoms may be briefly mentioned, which at least are usually supplementary, yet retain their significance as early paretic symptoms from the standpoint of the assumed diagnosis, while in themselves occuring alone, they possess only a limited early diagnostic value owing to their ambiguity.

They are; neuralgiform pains in the distribution of the trigeminal and occipital nerves, vague pains in the extremities, without being "lacerating," diffuse headache, or feelings of head pressure, finally derangements of sleep, even to complete, long continued insomnia.

The headache and insomnia are characterized in incipient progressive paresis by their special resistance to therapeutic measures; the neuralgiform, vague pains have scarcely anything characteristic.

The psychical symptoms strictly are here presented last, contrary to the usual custom. In the developed disease they so characteristically control the clinical picture, are so uncertain and protean in the early stage, and for the certain diagnosis in the prodromal stage the difficulty in examination consists in the demonstration of the organic symptoms* which for this reason were first discussed.

The expert psychiater, for whom every sixth or seventh patient is a paretic, often makes the diagnosis very early with subjective certainty; simply from the peculiar general impression of a psychical personality, whose individual components are often hard to formulate; for the physician little versed in psychiatry that is the normal method of diagnosis or rather it should be that a suspicion of incipient progressive paresis excited by these anomalies, receives its confir-

*The contrast of "psychical" and "organic" symptoms is really a perversity. I do not doubt that almost all "psychical" symptoms of progressive paresis owe their origin to "organic" changes. Perhaps it would be more correct to say "local symptoms" or something similar, instead of "organic." However the connection as to what is meant is sufficiently clear.

mation by the certain determination of objective, comprehensible symptoms from those above presented.

We will now review the most important of the early psychical changes. We often find subjective changes, an intense feeling of illness, in a certain measure a presentment of coming trouble, and also often thus comprehended by the patient, or a painful mental depression, which may be wholly objectless, *i. e.*, not needing to be united with concepts of corresponding color.

This more or less plainly marked trait may be common to the severe neurasthenic and melancholic hypochondriacal states of the prodromal stage.

But it is more common that the first psychical changes, even if apparent to those about, are not comprehended by the patient. One of the earliest manifestations in this respect is a changed reaction of the individual to the impressions of the world, particularly a generally increased irritability, be it to noises or the contrary, be it the mere daily oppositions to the will.

The misproportion between the cause and intensity of the anger thus induced, the exploding rage, is likewise found in severe functional neurasthenia, but with the difference that in the neurasthenic's emotional outbreaks the tendency to pass into disgust of longer duration, dissatisfaction, etc., is absent in progressive paresis.

Marked depressive emotions without proportional cause also occur; the complete loss of equilibrium in attacks of despair from trifling causes, to which many paretics are prone in the early stage, may be compared to the condition known as "drunken distress" manifested by many predisposed, but not sick individuals during intoxication; in the initial stage paretics quite often make wholly unexpected, yet intentional suicidal attempts in such sudden fits of displeasure; I knew a no-ways demented, usually very proper paretic, who got into a dispute with his wife at dinner in regard to a wine market, arose, hurried away and threw himself in the Ill. These emotions of paretics are less persistent; the increased irritability runs parallel with heightened lability, and the insignificance of

the causes which produce the change is also characteristic.

Premature loss of memory and judgement occuring gradually with lessened intensity of the higher (æsthetic, logical, ethical) feelings is due to the lowering of the general faculties, observed as an initial symptom, in the occupation or business, the carelessness, etc., but especially the frequent harmless or gross breaches of customs, morals, or of the law even—occurrences which have long damaged such patients' reputation, ere they were recognized to be ill by the family or their physician. The depreciation in function of the motor phase of mentality is early manifested in the inability for long continued, close attention, as well as in the patient's torpid manner lacking the initiative, which often occur years before the beginning of changes noticeable as serious mental anomalies.

The proof of the presence of these symptoms, which in their totality form the complex of psychical enfeeblement, give other, possibly early psychical anomalies their characteristic shade, which is expressed by the addition of the adjective "paretic" and may readily be distinguished from the corresponding disturbances in functional psychoses.

So we name the most important symptoms, paretic euphoria, paretic grandiose ideas, paretic melancholic or hypochondriacal delusions, paretic states of excitement.

The frequent combination of euphoria with paretic grandiose ideas, *i. e.*, indiscriminate concepts as to the personal faculties, position, financial ability, etc., often lead even in the early stage to those acts in which lie the social danger of an unrecognized progressive paresis.

These included the cases in which as (apparently) the first symptom of the disease, orders and purchases are made far in excess of the conceivable demand, lavish expenditure to no purpose occurs, silly projects, preferably matrimonial, are undertaken; these often occur when the patient is being treated in a sanitarium or Kniepp cure for "nervous irritability" and where they have the same freedom of action as on their "travels for their health," which perhaps has long exceeded the faculty of decision owing to their mental condition.

When one hears or reads in the paper that a man of heretofore proper conduct has given orders for his own personal use (to choose an actual case) for fifty cheeses, three hundred dozen cigar holders, a cargo of champagne or a carload of quinine, the suspicion of a progressive paresis must at once arise; such and similar things are committed almost only by paretics. The morbidly falsified idea of their own *ego* in relation to the world may naturally be orally expressed in grandiose ideas.

The grandiose ideas of paretics are readily distinguished from those of paranoia, negatively by the want of a preceding (to be anamnestically determined) development, by the absence of system and the stability of the concepts, positively by the simultaneous psychical weakness.

The last fact also psychologically distinguishes the exultation of the paretic from the true maniac, except that the majority of alleged "manias" in men of middle age are not manias, but early phases of progressive paresis.

The proof of psychical enfeeblement is the decisive differential diagnostic sign for the melancholiac and hypochondriacal ideas of the paretic and renders possible the recognition of modifications of the psychical picture not enumerated, even without attendant local symptoms.

But the earliest stage of paresis may be hidden behind the mask of functional psychoses and neuroses, which need present none of the paretic traits at first or for a certain duration of the disease.

For the correct diagnostic estimation of this condition the knowledge of the fact is important that, except in paranoia and epileptic mental disorders, recent simple psychoses in men are relatively rare at the period of life, which presents the maximum frequency of progressive paresis; whereas in women the functional psychoses at the same age present a higher frequency, in great part owing to the influence of manifold prejudicial agencies arising from propogation, while progressive paresis, as stated above, is three to four times as rare in men.

An apparently simple mania or melancholia, which occurs very often at this stage of life, unless it is a phase

of a periodical or circular mental disorder long since proven anamnestically, with respect to the above fact of itself must awaken the suspicion of progressive paresis, and, in the interest of prognosis, lead the physician to make a very careful physical examination. Inversely, in women, a mania, melancholia or hallucinatory confusion does not as a rule conceal a progressive paresis, much less so as progressive paresis in women generally, but not always occurs in form of a slow, insidious progressive dementia.

In cases of mania, melancholia or hypochondriacal depression the expert psychiater will often make a correct diagnosis with no paretic traits; the person of less psychiatric experience possesses in the proof of organic local symptoms the requisite diagnostic cue. At a time when the nature of progressive paresis was very little known, as also to-day, the warning is proper not to make a favorable prognosis of maniacs with very contracted or unequal pupils.

The differentiation between the early stages of progressive paresis and neurasthenia presents very much greater diagnostic difficulties, which in many cases may be insurmountable at the moment of the examination. A series of symptoms is common to both diseases; feelings of illness, irritability, vertigo, in effect apparently similar if also of a very different origin, lowered ability, disorders of sleep and digestion, tremor in the face, tongue and hands; both have their maximum frequency in middle life; both preferably affect intelligent, active persons; excesses figure in the etiology of both, be it in pleasure, be it intellectually, and a formula suitable to many cases, but not to be proven in all, expresses this commonality, in that it says: *ceteris paribus*, etiologically, a progressive paresis is developed in those formerly syphilitic, a simple neurasthenia in the non-infected. Clinically we observed in both diseases the two following modalities:—

Neurasthenia "precedes the progressive paresis," *i. e.*, a neurasthenic, in whom for a long time the most careful examination can discover no true paretic symptoms, later becomes evidently paretic, perhaps after an apparently normal interval has intervened, or the progressive paresis

"begins as neurasthenia," *i. e.*, an attack of disease recognizable as paresis presents among other symptoms those which are peculiar to the severer forms of neurasthenia.

Under the presumption of a careful examination the latter condition is the most frequent; the majority of paretics present, not at the time of admission to the hospital, but so long as they can be treated outside, the type of neurasthenia (plus more or less paretic symptoms).

The differential diagnostic signs, which are to be taken into account in the absence of organic local symptoms, are in part anamnestic, in part consist of the conditions found on examination; functional neurasthenia is a constitutional disease, which emerges from its latency under the influence of external pernicious agencies, in which, if the disease is fully developed, mild nervous anomalies of long duration, even from youth, may be ascertained from the patient; a severe neurasthenia occurring suddenly in a previously healthy man without ascertainable heredity, for which neither a traumatism or physical diseases (*e. g.*, influenza) can be made accountable, must hence awaken the possibility of an incipient progressive paresis.

The neurasthenic depression is secondary, the result of unpleasant sensations or fears; it is susceptible at times of being diverted or corrected; the paretic's depression is primary, more intense, less susceptible, less interrupted by normal as well as euphoric phases. The neurasthenic observes and reports his symptoms in a painfully exact manner, also those which only exist in his imagination as, *e. g.*, the loss of memory; the paretic presents objective defects in the same function, but of which he is unconscious. Functional neurasthenia, except the increased irritability, does nor present the changes of character in the sense of lowered æsthetic and ethical feelings, which early complicate the paretic type of neurasthenia; sudden, unpleasant emotions, especially spite and anger, do not have, as mentioned, the tendency tormenting the neurasthenic to pass into depression, which is hard to overcome and lasts for hours or days.

It is true of the other symptoms that in functional

neurasthenia a series of phenomena is observed, which in paresis are of organic foundation, as, *e. g.*, tremor of the face, etc., but that neither an increased tendon reflex accompanied by dorsal clonus, neither pupillary immobility nor apoplectiform seizures, neither spastic disorders nor objectively demonstratable diminutions of intelligence, occur. It is one of the most suspicious psychical symptoms when a debilitated neurasthenic suddenly becomes euphoric or develops grandiose ideas.

The majority of paretics, who come to the physician in extreme anxiety that they might be paretics, are not such.

In spite of the presence of numerous differential diagnostic signs it must be stated that there are cases, which even on an exact examination in this respect do not permit of definite decision as to whether it is paresis or neurasthenia at this time.

Similar difficulties, if perhaps not so frequent as in neurasthenia, are presented in the differentiation of the early stage of progressive paresis from the various conditions in chronic alcoholism.

Besides paretics in the initial stage are often considered by the laiety and physicians as simply "drunk," yet conditions quite often occur which do not permit of a definite diagnosis at the moment of examination.

In chronic alcoholism we find symptoms which it has in common with progressive paresis, the insomnia, diminished intelligence, blunting of the higher feelings, loss of energy; we find tremor and spasms in the face and extremities, possibly epileptiform or epileptic seizures, often absence of the patellar reflex in consequence of peripheral neuritis. If the disturbances in the tongue and face, and so those of speech, are very pronounced, a type very similar to progressive paresis may result and there is in fact—at least in literature—an "alcoholic pseudoparesis."

When however from these cases those are excluded which are simply true paresis in an inebriate complicated by several alcoholic symptoms (ideas of jealousy, active sensory deceptions) and further exclude those which have nothing to do with paresis, but are to be considered as

chronic alcoholic mental enfeeblement with very intense local symptoms, nothing now remains of the "alcoholic pseudoparesis."

Besides the variations in the speech derangements (usually not characteristic in alcoholics) the presence or absence of the reflex pupillary immobility must be regarded as the most important differential diagnostic factor; on careful examination, chronic alcoholics very rarely present real reflex immobility.

As a rule several weeks of enforced abstinence affords a further diagnostic fact; when the motor symptoms of irritation generally lessen, while the sluggish pupils begin to react better and the intelligence materially improves.

Difficulties often attend the practically important differentiation of beginning progressive paresis from certain nervous conditions after accidents.

In so far as it is a matter of simple neurasthenia following traumatism, what has been said applies here; but there are cases, without a cranial injury necessarily having preceded, in which besides apathy, mental depression, vertigo, hemiparesis, tremor with spasms in the tongue, face and hands, possibly articulatory speech disorders are found, while a certain torpid, obstinate condition prevents testing the intelligence, cases which may be exactly like certain types of progressive paresis, and yet do not belong to them; it is found that these patients present the same picture after three or four years without having become demented, etc. It is well then after a severe accident to be cautious as to the diagnosis of progressive paresis in the cases in which neither reflex pupillary immobility or a progressive intellectual defect is to be proven.

The differential diagnosis from senile dementia and the various forms of dementia after apoplexy very often fail in practice; the majority of cases, which, according to my experience, are brought to the clinic with the diagnosis of "progressive paresis," belong to these two categories.

An age limit is not to be fixed for the diagnosis of senile dementia in view of the cases of *senium praecox* and abnormally late development of paresis; it is also to be

stated that the slowly developed paretic dementia in old cases of tabes, *e. g.*, is not to be distinguished from senile dementia.

In general slight material will at first indicate senile dementia. In the cases of questionable senile dementia without tabes the organic local symptoms are decisive. Practically there is no great difference whether, *e. g.*, the dementia of a man in the latter part of the fifties is regarded as a late paretic dement or as an early senile.

What distinctions exist between the apoplectiform seizures of progressive paresis and those of arterio-sclerosis, has already been set forth; besides it is to be considered as a differential diagnostic sign that those with arterio-sclerotic seizures do not present in the intervals the degree of intellectual disturbance as the paretic, that in spite of possible euphoria, grandiose ideas are not developed and the patellar reflexes are almost never absent.

The differentiation from multiple sclerosis is often difficult in the latter stages of those cases whose development has not been observed; it may be very questionable at first whether a spastic paresis present as a single symptom is the initial phase of a multiple sclerosis or a progressive paresis; the distinction occurs as soon as evident intellectual disturbances are noticeable, which in multiple sclerosis is to be expected later and then only slightly pronounced; attacks of vertigo, common to both diseases, are not a differential diagnostic sign; true nystagmus is almost never found in progressive paresis. The sort of speech disturbance is not always decisive.

A differentiation of beginning progressive paresis from diffuse syphilitic processes of the cortex is not possible at present, also rarely "*ex juvantibus*"; antisyphilitic therapy, which may be successful in gumma, *e. g.*, only slight effects the diffuse processes.

The diagnosis of tumors consists in the proof of positive tumor symptoms, first of the choaked disc.

The conditions described as "encephalopathia saturna" are as yet too indefinite to be exactly diagnosed; the

anamnesis and proof of lead symptoms (blue line, neuritis) play the chief role in these cases.

We have now discussed the most important symptoms whose establishment may aid in the early diagnosis and the more common condition in which beginning progressive paresis may occur; "completeness" has not been my purpose; it is neither to be attained in the initial disease manifestations occurring in new modifications daily, not to be regarded as practically necessary; who examines his patients must be able to diagnose progressive paresis; I hope to have presented the principles of the diagnostic methods.

In conclusion a few remarks as to the significance and consequences of the early diagnosis of progressive paresis. Irrespective of the general significance to mankind the establishment of a disease whose diagnosis is attended by an absolutely unfavorable prognosis illustrates the practical significance of the early diagnosis socially to the individual according to the extent and kind of relations he has with the world. Who has had experience as to what mischief is caused and can be caused when men in authoritative positions, like military or government officials, like judges, etc., who have in keeping numerous existences or functionate as officials in responsible positions, are not recognized to be paretic, who does not understand the unconcern with which numerous physicians, perhaps in official positions of trust oppose a disease which can usually be early recognized by the average possession of corresponding knowledge and some diagnostic care that social damages are prevented; the same is true of those family physicians, who with indifferent or detrimental interferences (to which doubtless belong the hydropathic treatment in beginning progressive paresis) fritter away the initial stage and thus afford the patient sufficient time to squander his property and ruin his reputation.

As it is true that the diagnosis immediately determines the prognosis so it is also true that an early diagnosis permits what is to be attained therapeutically.

Not that by medicinal agents a marked retardation of

the degenerative process in the nervous system is to be expected; that it is in no way to be hoped for, from the repeatedly recommended antisyphilitics; but the consequences of the early diagnosis can and should be that the most important therapeutic factor, absolute rest, is procured which favors the occurrence of remissions and may effect an improvement, which makes it possible for the patient to return to his occupation for a time.

This rest, the removal from excitement and excesses, to which the disease of itself disposes, is not to be afforded the patient at home, except under the most favorable conditions; the hospital is only to be considered usually, where the duration of life is prolonged by proper care, prevention of suicide, etc. Besides the commitment to a hospital certain duties accrue to the physician by the early diagnosis of progressive paresis, *e. g.*; in respect to the best prevention of marriage, often euphorically planned in the initial stage, expert evidence in cases of accident, as well as the eventual motion by the family for the patient's disenfranchisement.

The certificate of its necessity, owing to the ability to dispose of property being impaired or destroyed by the mental condition, is made by the physician, who is almost always made responsible by a certain diagnosis of progressive paresis.

Complete disenfranchisement protects the patient and his family from financial losses, which otherwise frequently occur by the purchases, orders or contracts of the paretic in the initial stage.

In opinions as to disenfranchisement, as well as in criminal affairs, it is not only a matter of proof to the judge of a quantitatively more or less pronounced intellectual defect, but the certain establishment of the fact of the existence of the serious organic brain disease to which the numerous disturbances occurring in the emotional and volitional functions—the "ability to dispose of property" on the one hand, the "freedom of the will" in the legal sense—may usually appear principally as exceptional.

LEPRA ANAESTHETICA.*

(Original Research.)

By C. C. HERSMAN, M. D., Pittsburgh, Pa.

Lecturer on Mental and Nervous Diseases Medical Department of the Western Pennsylvania University; Alienist South Side Hospital of Pittsburgh; Member Staff St. Francis Hospital of Pittsburgh (Insane Department); Member American Medical, Pennsylvania State, Allegheny Co. and South Pittsburgh Medical Societies; Honorary Member W. Va. State Medical Society; Formerly of the West Va. Hospital for Insane.

JUNE 29th, 1896, A. D. W., was sent by one of the surgical staff to the neurological department of the South Side Hospital, of Pittsburg, and placed under my care for treatment, no diagnosis having been made.

He gave the following history: American, aet. 40 years, fourth child, married, has one child, aet. 14 years. Three brothers and one sister living, two brothers died in infancy. Father's death caused by accident; mother, brothers and sisters in good health. Further family history negative. Patient has led a life of more or less dissipation, but enjoyed good health in earlier years.

In 1878 he went to Brazil, South America, with an engineering corps. In a short while the company became insolvent and left their corps stranded. Patient found employment for a while around Para, Brazil, but in a few months was stricken with a malady, which was diagnosed and treated as malaria; a severe attack. In about ten or

*Read before the South Pittsburgh Medical Society, Sept. 6th, 1897.

eleven months he received aid from home and returned to the states, as he termed it. In 1885 while engaged in 'tending bar, he noticed gradually coming in his eye-brows a dusky red color, which soon began to thicken into a welt or hive-like condition. The eye-lashes and eye-brows began to drop out and the beard became very thin. The skin gradually thickened until it was thrown into folds on the forehead and face, constituting the peculiar appearance that has given the name Leontiasis (like a lion) to the disease. This thickening has made the face to appear broader, and has caused it to become mask-like, almost expressionless. His physiognomy is so completely changed that he would scarcely be recognized by his intimate friends. The depression in the nose was caused bv a fall from a wagon.

The alae of the nose and the lobes of the ears are enlarged. Later on the skin on the abdomen became so much thickened that it was thrown into folds on attempting to bend forward. About six months later he felt a numbness and burning coming in his hands, with inability to grasp objects. This disappeared in eight or nine months. Three or four months later pain began in the spine and left shoulder, extending down the arm. In a few months the first and second phalanges began to contract until they were rigidly fixed.

In three or four years the median and musculo-spiral nerves were attacked. About this time a severe conjunctivitis set in. Four years ago he pared what he thought to be a corn on the sole of his foot (ball of the toes, he called it) which did not relieve the trouble. Afterward he had the third toe removed.

Eight or ten years ago a macular eruption appeared on his arms, body and legs (white and bronze). The spots on the body have mostly disappeared, but are abundant on the extremities.

Present condition: Pain in left side and legs (main nerve trunks.) Chronic conjunctivitis and episcleritis, complete and rigid flexion of the first and second phalanges of the fingers; middle finger of right hand amputated. Following injury: Anæsthesia of hands and arms to elbows,

and of feet and legs to knees; left foot much swollen and distorted; third toe amputated. Thenar regions and palms of hands very much atrophied. Skin of face in folds; nose broadened, giving the expression, facies leontina; eye-brows almost obliterated, whiskers scant, center of moustache gone and hair on head thin; white and bronze spots abundant on arms and legs. In some of the white spots the skin is very much atrophied, showing a decidedly sunken or pitted condition. The spots range from a small size to two or three inches in length, by one and one-half to two inches in breadth. The spots are anæsthetic. Clippings with scissors and forceps can be taken without pain.

Nose: The patient gives a history of having experienced difficulty in breathing through the nostrils for past eight or ten years. He has also suffered from frontal head-ache during that time. Has had hard, crust-like formations in nostrils, which he used to remove, when it was likely to be followed by considerable bleeding.

Some time ago (indefinite) pieces of bone came away from nostrils, from both sides at different times. Physical inspection reveals a "frog face" nose. The nasal septum has been entirely absorbed. Portions of the middle turbinated bones are missing, only the stumps of each remaining; these are probably the bones he speaks of having come away. These, as well as other parts of the nasal canal, are covered with inspissated crusts. Upon removal of the secretions, the entire naso-pharyngeal surface presents a typical picture of chronic atrophy. Necrotic patches are present over remains of middle turbinateds and elsewhere. Patient was given an atomizer containing Dobell's Solution and instructed to use it three times a day; expressed himself as feeling much relieved in a few days.

Pathology and Bacteriology: A section from the tissue marked brown spot when stained by the Ziehl Neelson method showed bacilli in clumps scattered through the deeper layers of the corium. Sweat glands and hair follicles were not seen in this minute specimen. The epidermis did not show any alteration. A section from the tissue marked white spot showed no bacilli.

The bacilli mentioned above behaved toward the stain in the same way as tubercle bacilli. They were undoubtedly leprosy bacilli. They were not found aggregated in dense masses in "lepra cells" as is sometimes seen in tubercular leprosy under favorable conditions, but scattered as in the anæsthetic forms. Lepra bacilli were found plentifully in the secretions from the nose and eyes.

My friend, Rev. S. A. Hunter, M. D., (Ph. D., LL. D.) has the following to say on leprosy: "During twelve years practice in China, I saw many cases of leprosy. In the province of Shautung, our cases come mostly from two districts, which lie in the southern part, and are contiguous. So far as my observation goes there is no well established line of demarcation between the tubercular and anæsthetic varieties. Both forms often co-exist in the same individual. Anæsthesia is a well marked feature in every case. The disease begins almost always in the forehead and eyebrows. When it develops in the hands first, it soon after affects the face I cannot remember having seen any case in wnich this was absent; in fact, the loss of the eyebrows in connection with the formation of tubercles, discoloration and disordered sensation is regarded by the Chinese as pathognomonic. The segregation of lepers is not practiced in China; on the contrary, they are allowed full rreedom and privileges. The so-called leper villages are not composed exclusively of lepers, but are villages where leprosy is known to exist to a greater or less extent. In my opinion, leprosy is the disease of a district caused by a specific baccillus, which finds its appropriate nidus in the soil. The reasons for this belief are the following:—

"1st. The great centers of leprosy have remained such throughout the historical period. The centers of the disease three thousand years ago are still centers of leprosy to-day. Dr. Edkins has shown conclusively that the old centers in China were the same as they are now. The same is true in Egypt, Syria and India.

"2nd. Heredity seems to play little part in the propagation of this disease. Careful inquiry has established the fact that in the leper districts of China new cases arise in

families hitherto free from it; and families with several cases in one generation are exempt from it in the next. The leprosy commission in India after prolonged and exhaustive research declared that it cannot be considered an hereditary disease.

"3rd. Contagion as a cause has been given up. Constant contact with lepers in families and asylums, without contracting it, shows it to be non-contagious. On the other hand there are strong reasons for believing that it is infectious. But the continuous occurrence of cases without the opportunity of infection in certain districts, calls for some other adequate cause.

"4th. The prevalence of leprosy in Europe in the middle ages, which was attributed to the return of the Crusaders, points to the disease of a locality contracted under the conditions of soldier life in the East, in the mediæval period. On the other hand, its subsequent decadence in European countries, and ultimate eradication in some, simply by the establishment of leper asylums, cases arose, and the disease died out. In leper producing districts, on the contrary, new cases are constantly arising, and the disease perpetuates itself in each generation. Although it does not seem to be extending, it still lingers in its old haunts, with a marked persistency.

"As to the method of treatment, while undoubted benefit can be derived from baths, inunctions and tonics, yet the disease, except in its first stages, is incurable. It is a curious fact that Chaulmoogra seeds, which have been known in China for centuries, as leprosy seeds (Ta Fung Tzu) and reputed to effect its cure, should now have become a popular remedy for the disease with European physicians, in the form of the oil, used both externally and internally; whereas, its use for that purpose has long ago ceased in China. Thus, the forms of medical practice repeat themselves like history in recurrent generations."

Contagion. This man has lived with his wife and daughter, occupying the same bed since the inception of the disease; also, one brother has slept with him frequently. So far, there are no signs of contagion.





In Nanking, lepers are not isolated, but live with their families and mingle freely with the people. They come and go, stop at inns and tea-houses, ride on chairs and on donkeys, sit in the dispensaries and chapels, buy and sell, and manufacture articles of use. We can always infer contagion, that is, there has always been another person in the family or neighborhood; but, if so, how is the contagion introduced? Dr. Robt. C. Beebe, of Nanking, says t must be in some way not readily induced, from the fact that lepers are constantly mingling with the people and only a small portion get the disease. The most plausible way is inoculation. It is not uncommon for a leper to have scabies also, and many of them have it before the leprosy. Dr. Beebe thinks it very possible that the Acarus Scabiei to be the medium. In some parts of China donkey riding is the usual method of conveyance. Imagine a foreigner taking in hand the reins of a donkey which a leper had recently handled, disengaging a leprous Acarus Scabiei from a drop of pus left on the cotton strings, or reins, taking up its abode between the fingers. Prudence would, at least, caution us to be careful.

Osler says that it is contagious in the same sense as syphilis; that the closest possible contact may exist for years between parent and child, without transmission of the disease. Morrow states that in the majority of cases the disease is propagated by sexual congress. Osler mentions a case of inoculation having been successfully done. He also says that in anaesthetic leprosy there is a peripheral neuritis due to the attack on the nerve fibers. In the case here reported the musculo-spiral and median nerves were undoubtedly involved, showing that the attack is not necessarily confined to the peripharae. Fox says that the fear of the disease spreading in an intelligent community is without foundation.

Taylor says the disease is never observed in infantile .ife. Dr. W. H. Park (China), however, reports a case, a boy, Aet, eight years, admitted to the New Brunswick Lazaretto, and Dr. McGowan saw a case in a leper village near Hanoi, Aet, four years. However, there is no authen-

tic congenital case on record so far as I am able to find.

Treatment. Chaulmoogra oil is mentioned with painful regularity by our American authors as a cure, and with the same frequency we are admonished that the cure is very doubtful. The same has been used in China for centuries in the form of the seed. Dr. Douthwaite, who has had a wide experience in Chekiang and Chefoo, China, uses Creolin and Glycerine, equal parts for local application, with apparent good results.

In my case I used Creolin and Glycerine locally, and internally I gave Nux Vomica, beginning with ten drops three times a day, gradually increasing it to forty drops. The case did remarkably well up to September 15th, when I saw it last. He left my care at that time and went to look after his business—sewing machine agent.

Recently I have learned (March, 1897) that he, from exposure, during the fall and winter, has broken down, almost blind, lungs affected, a helpless wreck.

Conclusion. It is thought by some that the disease enters through the skin only, from the fact that the parts covered by the clothing are affected last; and that those wearing shoes and stockings all the time never have it in the feet.

I have quoted, preferably, those writing for the Chinese journals. They have had better opportunities from long service and association with the disease in its native haunts. Many of our authors have no experience except from short stays at the Lazaretto. Such experience cannot be as valuable as that obtained under more favorable circumstances. Our Medical Missionaries give the most satisfactory clinical reports I am able to find. Although it is a disease of centuries it is passing strange how little is known of it. It is thought by some that the Leprosy Conference which is to meet in Berlin, October, 1897, will accomplish nothing more than to thresh over the old straw.

Note.—On Sept. 2nd, I saw Mr. W. The distortion of the nose is much increased, the necrosis advanced, the folds in the face enlarged and his sight gone. He presents a very much advanced picture from September, 1896, when

he resumed his business. His cough is possibly not so bad as a few months ago. He does not seem to be in an advanced stage of lung affection. He has been under no special treatment since September, 1896.

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I am indebted to Prof. E. G. Matson, M. D. and Dr. T. L. Disgue for assistance in Pathological and Bacteriological examination; and Rev. Stephen A. Hunter, M.D., (Ph. D., LL. D.) for articles published by Chinese missionaries and to the authors quoted in the body of the report.

DEGENERACY STIGMATA AS BASIS OF MORBID SUSPICION.*

A STUDY OF BYRON AND SIR WALTER SCOTT.

By JAS. G. KIERNAN, M.D.

Fellow of the Chicago Academy of Medicine; Foreign Associate Member French Medico-Psychologic Association: Professor of Forensic Psychiatry, Kent College of Law.

THE meteor-like career of Byron has been a stock proof for decades of the origin of genius in degeneracy. The degree to which the reality is obscured by fiction, is astonishing even in this fertile field of literary industry. Few careers are more deeply stamped with degeneracy in its contrasted luridity of seeming gifts with the somber gloom of defect. To Macaulay's summing up of Byron's career used as a hypothetic case, any alienist would answer that the subject is a degenerate in environment tending to increased degeneracy.

The pretty fable by which the Duchess of Orleans illustrated the† character of her son the Regent might, with little change, be applied to Byron. All the fairies save one, had been bidden to his cradle. All gossips had been profuse of their gifts. One had bestowed nobility, another genius, a third beauty. The malignant elf, who had been uninvited came last, and unable to reverse what her sisters had done for their favorite, had mixed up a curse with every blessing. In the rank of Lord Byron, in his understanding, in his character, in his very person there was a strange union of opposite extremes. He was born to all that men covet and admire. But in every one of those eminent advantages which he possessed over others was mingled something of misery and debasement. He was

*Read by title before the Chicago Academy of Medicine, Dec 11th, 1897.

†Moor's Life of Lord Byron, Macaulay's Essays.

sprung from a house ancient indeed and noble, but degraded and impoverished by a series of crimes and follies which had attained a scandalous publicity. The kinsman whom he had succeeded had died poor, and, but for merciful judges, would have died upon the gallows. The young peer had great intellectual powers; yet there was an unsound part in his mind. He had naturally a generous and feeling heart; but his temper was wayward and irritable. He had a head which sculptors loved to copy, and a foot the deformity of which the beggars in the streets mimicked. Distinguished at once by the strength and by the weakness of his intellect, affectionate yet perverse, a poor lord, and a handsome cripple, he required if ever man required, the firmest and the most judicious training. But capriciously as nature had dealt with him, the parent the office of forming his character was intrusted with, was more capricious still. She passed from paroxysms of rage to paroxysms of tenderness. At one time she stifled him with caresses; at another time she insulted his deformity. He came into the world; and the world treated him as his mother had treated him, sometimes with fondness, sometimes with cruelty, never with justice. It indulged him without discrimination. He was truly a spoiled child, not merely the spoiled child of his parent, but the spoiled child of nature, the spoiled child of fortune, the spoiled child of fame and the spoiled child of society. His first poems were received with a contempt which, feeble, as they were, they did not absolutely deserve. The poem which he published on his return from his travels was on the other hand extolled far above its merit. At twenty-four he found himself on the highest pinnacle of literary fame, with Scott, Wordsworth, Southey, and a crowd of other distinguished writers, beneath his feet. There is scarcely an instance in history of so sudden a rise to so dizzy an eminence.

Every thing that could stimulate, and everything that could gratify the strongest propensities of our nature, the gaze of a hundred drawing rooms, the acclamations of the whole Nation, the applause of men, the love of lovely women, all this world and the glory of it were at once afforded to a youth to whom nature had given violent passions, and whom education had never taught to control them. He lived as many men live who have no similar excuse to plead for their faults. But his countrymen and his countrywomen would love and admire him. They were resolved to see in his excesses only the flash and outbreak of that same fiery mind which glowed in his poetry. He attacked religion; yet in religious circles his name was

mentioned with fondness, and in many religious publications his works were censured with singular tenderness. He lampooned the Prince Regent; yet he could not alienate the Tories. Everything seemed to be forgiven to youth, rank and genius.

Then came the reaction. Society, capricious in its indignation as it had been capricious in its fondness, flew into a rage with its forward and petted darling. He had been worshipped with an irrational idolatry. He was persecuted with an irrational fury. Much has been written about those unhappy domestic occurrences which decided the fate of his life. Yet nothing is, nothing ever was positively known to the public, but this, that he quarreled with his lady, and that she refused to live with him. There have been hints in abundance, and shrugs and shakings of the head, and "Well, well, we know," and "we could if we would," and "if we list to speak," and "There be that night an they list." But we are not aware that there is before the world substantiated by tangible, or even by credible evidence, a single fact indicating that Lord Byron was more to blame than any other man who is on bad terms with his wife. The professional men whom Lady Byron consulted were undoubtedly of opinion that she ought not to live with her husband. But it is to be remembered that they formed that opinion without hearing both sides. We do not say, we do not mean to insinuate that Lady Byron was in any respect to blame. We think that those who condemn her on the evidence which is now before the public are as rash as those who condemn her husband. We will not pronounce any judgment, we cannot, even in our own minds, form any judgment, on a transaction which is so imperfectly known to us. It would have been well if, at the time of the separation, all those who knew as little about the matter then as we know about it now, had shown the forbearance which, under such circumstances, is but common justice.

We know no spectacle so ridiculous as the British public in one of its periodical fits of morality. In general, elopements, divorces, and family quarrels, pass with little notice. We read the scandal, talk about it for a day and forget it. But once in six or seven years our virtue becomes outrageous. We cannot suffer the laws of religion and decency to be violated. We must make a stand against vice. We must teach libertines that the English people appreciate the importance of domestic ties. Accordingly some unfortunate man in no respect more depraved than hundreds whose offenses have been treated with lenity, is

singled out as an expiatory sacrifice. If he has children, they are to be taken from him. If he has a profession, he is to be driven from it. He is cut by the higher orders and hissed by the lower. He is, in truth, a sort of whipping-boy, by whose vicarious agonies all the other transgressors of the same class are, it is supposed, sufficiently chastised. We reflect very complacently on our own severity, and compare with great pride the high standard of morals established in England with the Parisian laxity. At length our anger is satiated. Our victim is ruined and broken-hearted.

And our virtue goes quietly to sleep for seven years more. This opinion of Macaulay seems but a rhetorical amplification of Magnan's* description of certain degenerates.

The predominant feature in the degenerate is the disharmony and lack of equilibrium, not only between the intellectual operations, properly so-called on the one hand, and the emotions and propensities on the other, but even between the intellectual faculties themselves. A degenerate may be a scientist, an able lawyer, a great artist, a poet, a mathematician, a politician, a skilled administrator, and present from a moral standpoint profound defects, strange peculiarities and surprising lapses of conduct. As the moral element, the emotions and propensities are the base of determination, it follows that these brilliant faculties are at the service of a bad cause, of the instincts and appetites which, thanks to the defects of the will, lead to very extravagant or very dangerous acts. In other cases the opposite occurs. Degenerates of irreproachable character show strange lacunae in their intellect. They have a feeble memory. Sometimes they cannot understand figures, calculus, music or drawing. In a word, an otherwise normal individual's intelligence is lacking as regards certain faculties. The perception centres are unequally impressionable, unequally apt to gather together impressions, only certain impressions are registered and leave durable images; certain relations, certain associations between different centers, are perverted or even entirely destroyed.

Macaulay in that more philosophic spirit of the born historian ably contrasted the scion of degenerate heredity with his environment, yet his contradictory parallels of defect and gift might be carried farther. An intense idolator of Pope, Byron freed English poetry from the artificiality stamped upon it by Pope and his fóllowers. This was done

*Annals Medico-Psychologigues, January, 1886.

unconsciously since Byron's great poem was formed upon Pope's "Dunciad." The continental literary world of Europe looks upon Byron despite his blows at the formal French school as a continentalized Englishman. Lombroso* with characteristic regard for race labels based on tongue, puts Byron and Virchow into the same category as departures respectively from the English and German types, yet neither belonged to the type to which Lombroso assigned him. Virchow as his name betokened was of Sclavonic type, like Skoda, Rokitansky and dozens of leaders of so-called German thought. Byron was of that mixed Celto-Scandinavian stock which intellectually dominates the so-called Anglo-Saxon race despite its rigid adoration for positivism of the Gradgrind fact type.

The Scottish Lowlands and the English Northumbria were settled by Scandinavians whose love of beauty is evident in the Sagas. This blood was mingled with that of Gymric Celts like those who wrote the Mabinogion and Caelic Celts, whose ballads according to the "judging eye of Spenser contained the pure gold of poetry."† Byron was an outcome of this strain. In him the blood of the poet-statesman, the Celt-Scandinavian James I. of Scotland mingled with that of the Scandinavian Buruns. To the same stock may be referred Ramsay, Scott, Hogg, Burns, Campbell, Hume, Adam Smith, Macaulay, Home, Smollett, Hugh Miller, Ferguson, John Hunter, Hutton, Black the Chemist, Blind Harry, Erskine, Carlyle, Macintosh, Faraday, Huxley, Tyndall, Aytoun Jeffreys, James Watt, Dryden, Mackenzie, McClintock, Burke, Hogarth, Parnell and the galaxy of names with which the Scotch, Scotch-Irish, Northumbrian English, Norman Irish, Celto- and Danish Irish have enriched the gallery of Anglo-Saxon greatness. Take this stock from American science, art, literature and statesmanship and an enormous gap results.

The Byron family were descendants on the paternal side from the Buruns, who either as the old vikings or as the Norman filibusters under William the Conqueror, exem-

*Man of Genius.

†Macaulay's History of England.

plified the Scotch proverb that "a ganging foot is aye getting." The Buruns who went to Livonia were as successful in "squatter sovereignty" in Russia as their kindred in England. In the Byrons in the 17th, 18th and 19th centuries the wild blood of the Berseker revived from time to time. An additional defect came from an alliance with a family in which vehemence, impulsiveness, waywardness and ability appear most strongly; the Berkeleys who shocked even the very complacent period of the "Restoration." The Berkeleys, however, had many qualities higher than the purely licentious beings by whom they were surrounded. The direct line of the Byrons became extinct in the Elizabethan epoch. An illegitimate son of the last scion of the old Buruns succeeded to the property by deed of gift. The mother of this illegitimate scion was subsequently married to his father. Her son became knight of the Bath under James I. Charles I made the grandson of this knight Lord Byron. He died early. He was socceeded by a brother who had a family of ten children. The eldest who became the third Lord, wrote "Spring poetry." The fourth Lord brother of the poetaster had many children. The eldest of these was a licentious, quarrelsome, vindictive man, feared or hated by everybody, known as the "mad and wicked Lord Byron." There was no crime of which he was deemed incapable. Under circumstances that to modern ideas strongly suggested murder, he killed his relative and friend Chaworth who, however, was an equally practiced duelist and was superior in swordsmanship to Byron. He was a morose husband, an arbitrary and tyrannical father, a harsh landlord and a hard master. He hated his son and grandson and transfered this hatred to the poet—"the little boy Aberdeen," as he styled him. Having built mock forts about the lake in his park and put a fleet of toy gun-boats on the water he used to amuse himself with mock fights of a naval character, the toy ships firing away at the fort, which returned the fire. When he was weary of this childish game the old man used to lie on the ground and gossip with the crickets, whom he loved far more than "the ittle boy Aberdeen." Wh en the crickets were troublesome

he used to whip them with a whisp of hay. The crickets are said to have left the Abbey in a body, as soon as our human friend was dead, and never to have returned thither. Here was illustrated the zoophilism, that morbid love of animals, which so often coexisting with misanthropy, constitutes the antivivisectionism of the degenerate of to-day. His sister Isabella, an eccentric poetaster, married Lord Carlisle, the poet's guardian's father.* The artistic tendency of the fourth Lord Byron inherited from his mother (a Chaworth) produced some landscapes. His son Richard copied Rembrandt's "Three Trees" so skilfully that the copy was bought erroneously for an original by a connoisseur. Though the earlier book exposed him to charges of inaccuracy on matters about which he was bound to be exact, Admiral Byron's famous "Narrative" of adventures on the coast of Patagonia and "Voyage Round the World" are, according to Jeafferson of no common merit. On literary grounds they were favorite reading with the author's grandson who, after throwing Don Juan on the sandy fringe of Haidees isle, says:

> And need he had of slumber yet, for none
> Had suffered more, his hardships were comparative
> To those related in my grand-dad's "Narrative."

In addition to the poet's poetic tendency derivable from the races to which Byron belonged, such tendencies were present in his immediate ancestors.

Byron's grandfather, the Admiral, married his paternal first cousin, Sophia Trevanion. From this union which doubled the Berkeley blood came the poet's father "Mad Jack" Byron. He was a handsome man who became a captain in the guards, but his character so developed itself in degeneracy as to alienate his family. In 1778 he seduced Amelia D'Arcy, daughter of the Earl of Holderness, in her own right Countess Conyers, wife of the Marquis of Caermatheñ, afterwards Duke of Leede. Mad Jack boasted of his conquest. The Marquis to whom his wife had hitherto been devoted refused to believe the scandal afloat. An intercepted letter containing money for which "Mad Jack"

*The Real Byron by Jeafferson.

was always clamoring, left no doubt. The pair eloped to the continent. After the Marquis obtained a divorce they were married. The heartless profligate made life wretched to the woman whom he was peculiarly bound to cherish. From this union came Byron's half sister. A year after the death of his first wife "Mad Jack" entrapped Miss Catherine Gordon of Gight, who with considerable estates had an over-weening pride in her descent from James I of Scotland through his daughter Annabella, and the second Earl of Huntley.

The property of the Scotch heiress was soon squandered by the English rake. In 1786 she left Scotland for France and returned to England toward the close of the following year. January 22, 1788, Mrs. Byron gave birth in London to George Gordon, sixth lord. Shortly after, pressed by his creditors, the father fled to France where he died in August, 1791, in his 34th year. Accordihg to the poet his father was insane and killed himself. The suicide has not been clearly established, but circumstances point to it. The marriage was unfortunate in bringing together two degenate stocks. The poet's maternal grandfather, a victim of periodical melancholia, drowned himself at 40. Other members of the family were suicides. Miss Gordon was a woman of very unbalanced temperament. At the theater in Edinburgh she went into convulsions shrieking about her love to "Mad Jack" on seeing Mrs. Siddons as Juliet. She half-worshiped, half-hated her blackguard husband and fell into grand hysteria at his death. Her mental defects were the theme of comment by the poet's school fellows: "Your mother's a fool," said a school boy to Byron. "I know it," was his curt reply, followed by a ominous silence.

A more exasperating mother for a sensitive passionate child cannot be imagined than this vehement undisciplined woman, who had fits of ill-temper hourly and who rarely passed a week without a wild outbreak of hysteric rage. Lavish of kisses to the child when good humored, she was lavish of blows when he incurred her capricious displeasure. In a later stage of his infancy instead of fearing, he hated her. Once after pouring coarse abuse and profanity upon

him she called him "a lame brat." At this the glare came from the child's eyes that so often flashed from them in after time. Whilst his lips quivered and his face whitened from the force of feeling never to be forgotten, he was silent and then said with icy coldness: "I was born so, mother," and he turned away from the woman who dared not follow him. The scene was in the poet's mind when he told the Marquis of Sligo that it was impossible for him to love Mrs. Byron as a son ought to love a widowed mother. The scene was still in his mind when three years before his death he wrote the first words of "The Deformed Transformed."

Bertha—"Out, Hunchback!"
Arnold—"I was born so, mother."

Miss Gordon reached the lower clase of Scotch women rather than a scion of royalty. She was prematurely obese. Her features had that exaggeration of the Scotch type which constitutes arrest of facial development. By no means devoid of the shrewdness and ordinary intelligence of inferior femininity she was capable of generous impulses to the persons, whom, in her frequent fits of uncontrollable fury she would assail with unwomanly violence. Mrs. Byron's early education was remarkably neglected at a time when Scottish young ladies of her station were exceedingly well educated and the contrast between them and the women of the lower class was enormous. She found that her husband to whom she had sacrificed her fortune was the meanest kind of a profligate who did not hesitate to leave her practically penniless, burdened with her own infant and the daughter of "Mad Jack's" first wife whom she seems to have treated with all the kindness possible to an ill-regulated nature. In her characteristics however, she certainly did not resemble the later Stuarts who were a species of confidence operators.

Byron as a child was sullen and defiant of authority, but singularly amenable to kindness. On being scolded by his first nurse for having soiled a dress, without uttering a word he tore it from top to seam, as he had seen his mother tear her caps and gowns. Her sister and successor

in office, May Gray, acquired a permanent hold on his affection. To her training is due the Biblical knowledge he possessed. He was peculiarly inquisitive and puzzling about religion. Byron's political opinions were undoubtedly influenced by his mother who believed that the sufferings of the people fully justified the strong measures adopted to "crush tyrants." Mrs. Byron with the courage of her convictions avowed herself a "Democrat," and in the hearing of Tories prayed for the time when all oppressors would be called to account and punished accordingly to their deserts. Byron was taught by his mother to abhor tyrants and regard the poor as extremely ill-used people, who would be as prosperous and virtuous if despots and plutocrats would but leave them alone. As a Calvanist May Gray had no great reverence for Kings, but the mother had clearly a share in the formation of the child's character. When Byron was born, the obstetrician in attendance was John Hunter, the great biologist. The condition causing Byron's after lameness was clearly congenital since John Hunter instructed Mrs. Byron as to the shoe the child would require when able to use one. The inability of the Scotch surgeons to comprehend the general principles of Hunter's prescriptions led to a shoe being made under Hunter's supervision two years after. The lameness which occasioned the poet so much distress was due to contraction of each tendon Achilles according to Jeafferson.

Both feet may have been equally well formed, save in this sinew till one was subjected to injudicious surgery. The right was, however, considerable smaller than the left. Instead of being congenital, the slight contraction of the left tendon Achilles may have been the result of the patient's habit of stepping only on the fore part of the foot, so as to accommodate its movements to the action of the other extremity. Though it may not have existed in the earlier years of his childhood, the contraction of the comparatively normal sinew was noticed by Trelawny when he made the post mortem examination of both extremities at Missolonghi. The right tendon, however, was so much contracted that the poet was never able to put the foot flat upon the ground; always using for it a boot made with a high heel. This foot was so considerably distorted as to

turn inwards, a malformation that may have been caused altogether by the violence with which the foot was treated by the less intelligent of the boy's surgeons, and more especially by Lavender, a Nottingham quack.

Byron's lameness was of a kind far more afflicting to the body and vexatious to the spirit than the lameness of such an ordinary club-foot as disfigured Sir Walter Scott. With a club-foot to plant firmly on the ground, Byron could have taken all the bodily exercise needful for the natural correction of his morbid tendency to fatten. He would have moved about awkwardly and to the derision of his least generous playmates; but he would not have been debarred from participation in all of their manlier sports. Instead of musing or moping for hours together on the famous tombstone he would have distinguished himself in the Harrow playing grounds at cricket, and even at leap-bar. A few years later instead of standing sadly in the corners of London ball-rooms, eyeing enviously the young men whirling round with fair partners, he would have fatigued himself in the gallopade and delighted in the waltz, which he affected to abhor as unfit alike for men and women. Better still instead of taking most of his out door exercise in the lazy yacht or easy saddle, he would have been a bold climber of mountains.

To the question why Byron did not bear his lameness as bravely and cheerfully as Scott bore his lameness, one answer is, that whilst the Scotch poet suffered from nothing worse than a club-foot Byron endured a lameness far more trying to health and spirits. Had Sir Walter been constrained to pick his way through life on his toes "hopping" about like a bird (to adopt Leigh Hunt's way of sneering at a comrade's grievous affliction), he would certainly have been less happy. And had Byron been able to walk about like a man, albeit with a club-foot he would have been less often stricken with melancholy and moved to breathe the fierce breath of anger.

Nichols,* an equally careful but more judicial biographer, shows more appreciation of the influence of the mental state when he remarks:

A physical defect in a healthy nature may either pass without notice or be turned to a higher purpose. No line of his work reveals the fact that Sir Walter Scott was lame. The infirmity failed to cast even a passing shade over that serene power; Milton's blindness is the occasion

*English Men of Letters.—Byron.

of the noblest prose and verse of resignation, in the language. But to understand Pope we must remember that he was a cripple; and this Byron never allows us to forget because he himself never forgot it.

His sensitiveness on the subject was early awakened by unfeeling references, "What a pretty boy Byron is," said a friend of his nurse. "What a pity he has such a leg." On which the child with flashing eyes cutting at her with a baby's whip cried out, "Dinna speak of it." In the height of his popularity he fancied that the beggars and street sweepers in London were mocking him. He satirised and discouraged dancing. He preferred riding and swimming to other exercise, because they concealed his weakness and on his death bed asked to be blistered in such a way that he might not be called upon to expose it. The Countess Guiccioli, Lady Blessington and others assure us that in society few would have observed the defect if he had not referred to it; but it was never far from his mind and therefore never from the mouth of the least reticent of men.

Trelawney's account is the most authentic:

I saw Byron lying in his coffin; impelled by curiosity, I sent the servant out of the room and uncovered the foot of the dead man. The mystery was solved; both feet were clubbed, and his legs withered to the knee, but the right foot was the most distorted, while the right leg was also shorter than the other.

It is clear from these differing accounts that the condition was in part congenital, otherwise John Hunter would not have prescribed so early for it. It is also obvious that the deformity was exaggerated by later unskillful treatment noticeably by the quack Lavender, whom Mrs. Byron with the usual degenerate prediliction for the occult, selected. The influence of the poet's mental sfate, for finding references to his deformity where none were intended is evident in the remarks of the Countess Guiccioli and Lady Blessington. Sir Walter Scott's lameness, due to a post febrile paralysis, seems to have been always slight and to all intents and purposes was recovered from early.

Commenting on these contrasted narratives, Dr. F. S. Coolidge, one of the leading Chicago Orthopædist, remarks:

Trelawney's account of Byron's deformity as seen after the poet's death is the most authentic. Both feet

were clubbed, the right more than the left, and both legs were withered to the knee. The right leg was shorter than the left. That the deformity was congenital is shown by the fact that John Hunter observed it at Byron's birth. It was undoubtedly double congenital talipes equino-varus; the deformity being worse in the right foot. Jeafferson's claim that the right alone was deformed and that the left became so by walking on the toes to accommodate the gait to the deformity, is untenable since the right leg was shorter than the left, and toe-walking on the left would have increased the difference in length and of necessity the lameness. Moreover, it would have swelled the calf muscles into goodly size, whereas Trelawney explicitly states that both legs were withered. The deformity of Sir Walter Scott was clearly due to anterior poliomyelitis, leaving a group of muscles in one leg paralyzed. This disease usually attacks healthy children. Good health and cheerfulness in after life are usually preserved, except in very extreme cases. Congenital club-foot unquestionably arises from different causes. It is so frequently an accompaniment of severe forms of mal-development and of congenital brain defects, that there can be no doubt that imperfect constitutional development is one of its causes. That the deformity, with the many limitations to a well-rounded life, that it involves, may tend to create morbidness to a certain degree, is perfectly true, but extreme morbidness is far more likely to be an additional symptom of the degeneracy which in certain cases is the underlying cause for the deformity.

Under Dr. Coolidge's analysis and from the standpoint of the alienist, the student of Byron's career is compelled to take into account, therefore, the possibility of an underlying state due to degeneracy. The question arises in what particular neuroses did the degeneracy existent in Byron find such expression as to lead to suspicional irritability. As I have elsewhere shown,* vanity and jealous suspiciousness are exceedingly common in degenerate children. The mental life swings between periods of exaltation and depression alternating with brief epochs of healthy indifference. Psychic pain arises from the most trivial cause and finds expression in emotional outbursts. The child is peculiarly liable to the ordinary fears of childhood intensified by the degenerate state. If in addition to these fears, there be

*ALIENIST AND NEUROLOGIST, July, 1897.

some tangible physical defect around which they may be centered, then that physical defect renders them a fixed idea which would not otherwise occur. This condition is further intensified through injudicious brutal reference to the defect by those in whom the child's natural instinct of refuge taking cause it to confide. A healthy mental background would throw off these morbid fears. A sound maternal care would destroy them. In Byron's case not only was the last absent, but its very reverse was present. The brutality with which Mrs. Byron referred to her son's lameness could not but be echoed by her inferiors. Although May Gray to no mean extent supplied the proper refuge, still this could not offset the maternal influence. In addition to these factors another element has to be taken into account. The evidence of the co-existence of a special neurosis producing a suspicional irritability was decades ago thus summed up by Madden:*

Whether Byron's epileptic diathesis was hereditary or not, the question of its existence is beyond dispute. He had no regular recurrence of its paroxysms like those that belong to a confirmed case of the primary form of this disease, his seizures were generally slight, occasioned by mental emotion or constitutional debility, induced by the alternate extremes of intemperance and abstemiousness. In boyhood, the most trivial accident was capable of producing sudden deprivation of sense and motion. On one occasion a cut on the head produced what he calls a "downright swoon." A similar effect was the consequence of a tumble in the snow at another time. In later life the same constitutional tendency is to be observed. One evening on the lake of Geneva with Mr. Hobhouse an oar striking his shin caused another of those "downright swoons;" he calls the sensation a very odd one, a sort of grey giddiness first, then nothingness and a total loss of memory." At Bologna in 1829, he thus describes one of those attacks in one of his letters: "Last night I went to the representation of Alfieri's Mirra, the last two acts of which threw me into convulsions; I do not mean by that word a lady's hysterics, but an agony of reluctant tears, and the shocking shudder which I do not often undergo for fiction." This attack appears to have been of graver nature than the description of it implies, for a fortnight after we find him complaining

*Infirmities of Genius, Vol. II, p 91.

of its effects. He was seized with a similar fit at witnessing Kean in Sir Charles Overreach and was carried out o the theater in strong convulsions. At Ravenna in 1821, in some occasions of annoyance, he says he flew into a paroxysm of rage which had all but caused him to faint. And the same year complaining of the effects of indigestion he says, "I remarked in my illness a complete inaction and destruction of my chief mental faculties. I tried to rouse them, but could not, and this is the soul. I should believe that it was married to the body, if they did not sympathize so much with each other."

Ellis, the American artist, alludes to a convulsive and tremulous manner of drawing in a long breath as one of Byron's peculiarities; and we are informed by Lody Blessington whose accurate observation of Byron's character we have reason to place great dependence upon, that any casual annoyauce gave not only his face, but his whole frame a convulsive epileptic character.

In all cases of degeneracy, the environment especially during childhood is of peculiar interest to the student. May Gray, Byron's nurse, with that intense altruism and deep sense of justice (frequently miscalled charity) so often present in Scottish Calvinistic women, even of the lower class (which is so akin in its predestinarian spirit to the similar justice of the determinism of evolution) saw at once the source, and the causes of the intensification, of the hereditary defect of her nursing for whom, she always cherished the deepest affections. In the cant of plutocracy, which to-day echoes the law and order cant of the Stuarts, Bourbons and George the III (the most crazy and meanly trickiest of the Hanoverians), it is too often forgotten that the personal liberty principles of the Americans of the Revolution came to them not merely from the Puritans, the republican Hollanders and Huguenots, but largely from the Scottish Republicans, whether resident in the lowlands of Scotland or the North of Ireland whose spirit glows in the verse of Burns:

> The rank is but the guinea stamp,
> The man's the gowd for a' that.

The influence of Mrs. Byron's republicanism on the poet would have been feeble but for the sterner, deeper republicanism of May Gray, which was of the type that

founding the United States expressed its ideal in Emerson's vision:

"When the church is moral worth,
When the statehouse is the hearth,
Then the perfect state is come,
The republican at home."

To May Gray's training intensified by his mother's vehemence is due Byron's deep-seated sense that while:

"The name of commonwealth is past and gone,
Still one great clime in full and free defiance
Yet rears her crest unconquered and sublime.
Above the far Atlantic—she has taught
Her Esau-brethren that the haughty flag,
The floating fence of Albion's feebler crag,
May strike to these whose red right hand has bought
Rights cheaply earned with blood."

I have dealt at much length with the source of republicanism in Byron as Byron's republicanism has been considered a cant like that of Caligua, and hence among his mental stigmata of degeneracy. In Great Britain and Ireland, however, it should be remembered that the hereditary nobility of the Continent does not exist; good family does not mean ennoblement, and descendants from noble families are often not merely commoners but often fall into very inferior social status. This fact has been excellently utilized by Hardy in the family history of the milkmaids of his dramatic "Tess of the Dubervilles." The same condition is illustrated in the fact that next to Tennyson, the poet, the nearest legitimate collateral descendant of the Plantagenets was a sexton at Wapping named Plant, who with the poet had therefore a greater hereditary claim to the British throne than Queen Victoria or the idol of the modern Stuart hysterics, Princess Mary of Modena. Byron's republicanism, was therefore a healthy outcome of early environment.

(*To be Continued.*)

HISTORY OF SOUTHERN HOSPITALS FOR THE INSANE.*

By T. O. POWELL, M.D.

Medical Superintendent, State Lunatic Asylum, Milledgeville, Georgia.

VIRGINIA now has four asylums for the insane—three for whites and one for colored. The names of these asylums were changed in 1894 to State Hospitals.

In 1769 the House of Burgesses in the colony of Virginia provided for a building for the insane at Williamsburg, the capital of the colony. The institution was officially called "The Hospital for the Reception af Idiots, Lunatics, and Persons of Insane and Disordered Minds." It was in dimensions 100 feet by 38 feet. At a meeting of the Court of Directors September 14, 1773, the hospital was examined and found finished. Mr. James Galt was appointed keeper, and "after he agreed to accept the said office, the court delivered the charge of the said hospital to the said James Galt." The keeper had entire charge of the hospital, subject only to the Court of Directors—as the superintendent now has. He attended to all the business, expended all money, and the visiting physician was sent for only when the keeper ordered that he should be.

Mr. Jomes Galt, the son of Mr. Samuel Galt, was born in 1741, probably at "Strawberry Banks," a farm near Old Point Comfort owned by his father. He had had the advantages of education and travel, and was noted for his integrity, and later for his patriotism. He held the position of keeper until the hospital was suspended from lack of funds during the revolutionary war, and when the insti-

*Being a section of Presidential Address before the fifty-third annual meeting of the Medico-Psychological Association at Baltimore, Maryland, May, 1897.

tution was reopened after the war he was reappointed, and remained in office until the time of his death, December, 1800. He was succeeded as keeper by his son, Mr. William T. Galt, who held the office for twenty-six years, to the time of his death. He was educated at Williamsburg, and was noted for his kindness to the patients and his associates. He was mayor of Williamsburg when Lafayette made his second visit to America, and received him officially when he visited the old city.

In January, 1774, Dr. John de Segueyra was chosen a member of the Court of Directors, and it seems was the visiting physician. In 1784 the Court of Directors met for the first time after the war, passed resolutions as to repairs to be made to the hospital, an enclosure put up around it, etc. From the records it seems that no patients were received into the hospital after it was suspended until after the Court of October, 1786, at which time Mr. James Galt was reappointed keeper and Dr. John de Segueyra appointed visiting physician. In the meantime the few remaining patients had been taken care of in the town.

In 1789 the Court of Directors paid Drs. Galt and Barrand a bill—probably for attendance, in absence of Dr Segueyra—and in 1791 Drs. Galt and Barrand, who practiced together, were appointed visiting physicians, and Dr. Segueyra retired on account of poor health. Dr. Barrand had been a physician's mate to Dr. John M. Galt in the war, and afterwards they practiced together. After a few years Dr. Barrand moved to Norfolk, and Dr. John M. Galt still held the position at the hospital, assisted by his son, Dr. Alexander D. Galt. Dr. John Galt was younger brother to Mr. James Galt. He was born in Williamsburg in 1744, educated at William and Mary College, and received his medical education at the schools of Edinburgh and Paris. He served for a time in the Hudson Bay Company, was associate physician in the asylum at Williamsburg for many years, and had a large private practice. He was a prominent medical officer during the revolutionary war, was senior field surgeon at the end of the war, and had charge of the sick soldiers for some time after the war in the hos-

pitals established in Williamsburg. He compounded and gave to the patients all medicine after he was appointed attending physician to the hospital.

Dr. Alexander D. Galt, the son of Dr. John M. Galt, was born in 1771 in Williamsburg, was educated at William and Mary College, and at Oxford, England, and received his medical education in London, being the private pupil of Sir Astley Cooper, and attending lectures and the hospitals there. He was associated with his father as visiting physician to the Hospital for the Insane in Williamsburg. He introduced what he called the "gentle treatment" for the insane—endorsing Pinel. His private practice was even larger than his father's. He was a philanthropist, and "went about doing good." The poor thought he was paid by the state for attending them. He, on one occasion, refused half of the largest fortune in Virginia in order to stay all night and nurse a poor, sick, drunken, free negro, who had no one to take care of him. He also prepared and gave to the hospital all medicine used. He, like his father, was for many years one of the Board of Directors of William and Mary College. He was a distinguished army surgeon in the war of 1812.

DR. JOHN M. GALT, THE SECOND.

Dr. John M. Galt, son of Dr. Alexander D. Galt, was born in Williamsburg and educated at William and Mary College and at the medical schools in Philadelphia. He succeeded his father as physician to the hospital. The Board of Directors waited a number of months until he had graduated to offer him the position, so well was his unusual ability recognized and appreciated, although he was so young. He was born in 1819, and when in July, 1841, he was appointed superintendent he was only twenty-two years of age. He was the first Medical Superintendent, and brought many changes to the institution. He took many of the duties that formerly belonged to the keeper. He introduced all the gentle treatment for the insane—probably more than had ever been used for them in any institution in the world. He, like the other members of his family, was philanthropic. He refused many times to allow

his salary to be raised, fed many patients from his table, etc. He greatly loved and pitied the patients and when, in May, 1862, the Union troops came and took possession of the town and hospital, and the guard at the gate refused to allow him to enter, his anxiety about the patients was so great that he could neither eat nor sleep for several days and nights, and it was thought this caused his death; and so this wonderful man was lost to the world in his forty-third year. He thoroughly understood all the languages usually taught in the colleges of that day—spoke and read fluently more than twenty different languages—Greek, Latin, Spanish, French, Italian, and in addition, Sanscrit, Arabic, German, Danish, Swedish, etc. He wrote on many subjects, and among his papers were found letters from the leading medical publications begging him to write for them. Dr. Galt was a gentleman of the highest scholarly attainments. He was inflexibly true to his convictions of duty. The following words of his own composition form a fitting memorial of his character:

"God has given us the desire of fame for the good of our species. True fame, then, resulting from the desire to make our names known by doing some great good, is worthy of being; it is following out the great purpose of our Creator. It makes no difference that we shall be slumbering in the quiet grave when all that is good to which we have given rise is accomplished. We have followed out the destined end of our being; we have exercised rightly the talents which have been entrusted to us for the good of mankind."

Searching literature on the treatment of madness he compiled a work on that subject which was at the time standard authority abroad as well as in this country, though now almost forgotten. He was one of the first to recognize the value of employment in the treatment of the insane. Such a calamity was his death that we yet feel his loss. In the record of the Galts, lasting nearly a century, we find the only parallel in America to the justly famous Tukes of England.

During Dr. Galt's incumbency three buildings were

added to the institution—one for women and two large ones for men. Back of the hospital proper there was a large building connected by a covered way. In this were confined some of the worst female patients. Both classes were provided alike with all the necessities and comforts.

By the federal authorities Dr. Wager of the Fifth Pennsylvania regiment was appointed superintendent of the hospital, and held the position to the end of the war.

Dr. Leonard Henley, formerly of Blockley, had been elected by the directors to succeed Dr. Galt. He was informed by the federal authorities, however, that he would not be allowed to hold the position; but after the war his appointment was reaffirmed by the board. In a short time he was again displaced by the military and the position given to Dr. Garrett, who was succeeded by Dr. Petticolas, and at the death of Dr. Petticolas a short time after his appointment, Dr. Brower was appointed; after him came Dr. Black. Then came Dr. Wise, and about twelve years ago, Dr. Moncure, the present superintendent, was appointed.

During the time of Dr. Brower the middle and oldest part of the asylum was burned, and about eleven years ago, during Dr. Moncure's superintendency, there occurred a large fire, burning most of the buildings which were standing at the close of the civil war. Detached buildings (which Dr. John M. Galt always advocated) have been erected, giving increased capacity to the institution. On the site of the first building is now an infirmary almost finished. Across the street is a large executive building. There are now accommodations for five hundred and fifty patients.

STAUNTON, VIRGINIA.

The distance of the asylum at Williamsburg (several hundred miles) from the western parts of the original great commonwealth of Virginia called for the erection of a second institution of the same kind, and the General Assembly passed an act in 1825 providing for the establishment at Staunton of the Western Hospital for persons of unsound mind, and appropriated $10,000 for the erection of suitable buildings. Four acres of land were purchased near Staunton

and in 1828 under Dr. Boys, the asylum was opened for the reception of patients.

Dr. Boys remained in charge of the hospital for eight years, and there were only seventy-nine patients received, of whom there were discharged thirteen. In 1836 Dr. Francis T. Stribbling, a young man only twenty-six years of age, was made visiting physician to the hospital. He found the asylum, as was that of Williamsburg, in charge of a keeper, Samuel Woodward, whose wife acted as matron. There were only forty-five patients in the hospital. The young physician was not superintendent, but only employed to visit the institution and give such medical attention as the patients might need. He found the hospital, as most institutions of the same kind were at that time, a mere prison-house where people of unsound mind could be kept, and found no effort made to secure their recovery. He visited the best institutions in the Northern States and consulted with their superintendents, and decided on an advanced movement in the management of the asylum. He proposed startling changes, and found an intelligent Board of Directors who concurred in his views. Land was bought that the patients might find employment in farming; work was provided for the idle hands of the female patients. Amusements were introduced, and appropriations were secured for the enlargement of the buildings. A chapel was built, and the equipment of a well-furnished institution was provided. The visiting physician was made superintendent, and a full staff was appointed. The asylum which contained when he came only forty-four patients, in twenty-five years had in its care over four hundred. The war came on; provisions were scarce and hard to get, but by a wondrous Providence there was no want in the institution. At the very close of the war a cavalry raid swept upon the asylum and bore away nearly all its supplies, but the loss which would have entailed much suffering at an earlier date, was repaired, and the afflicted inmates knew no real want. The good man who had given his life to care for these sufferers lived till July 23, 1874, having reached the ripe age of sixty-four, and leaving behind him as the result

of intelligent devotion to his work an asylum equipped with every needful provision, and conducted upon the wisest and most humane methods. Dr. Curwen well says of him: "To talents of a very high order he united unblemished integrity." He was a man of warm and generous feelings, inflexible firmness, and had such grace and serenity as won the confidence and affection of all brought in contact with him.

Not to superintendents alone has all the credit of earnest and successful effort been due. In many instances assistant physicians have served for long periods of years, rendering meritorious services which deserve commemoration in this connection. Dr. William Hamilton served the Staunton Hospital faithfully as assistant physician for more than thirty years. On account of his extreme modesty and diffidence he was little known outside of the institution. He was a high-toned gentleman, a learned and efficient alienist, devoted to his work, loving his patients and beloved by them. He contributed not a little to the success of this institution.

Dr. Robert T. Baldwin succeeded Dr. Stribbling. He was born in Winchester, Va., elected superintendent September 24, 1874, and died in Staunton November 14, 1879. He was a faithful and conscientious public officer, a man of decided character, charitabie, with much warmth of friendship, and complete unselfishness.

Dr. A M. Fauntleroy succeeded Dr. Baldwin. He was born in Warrenton, Va., July 8, 1837; was a graduate of the Virginia Military Institute, an alumnus of the University of Virginia and the University of Pennsylvania; assistant surgeon in United States Army, 1860, and surgeon C. S. A., and President of the Board of Directors of the Western State Hospital. He entered upon his duties as superintendent of the Western State Hospital, January, 1880, and continued as such until 1882, when he was succeeded by Dr. R. S. Hamilton, who served two years, when Dr. Fauntleroy was re-elected, and served his second term of two years. Dr. Fauntleroy was an able and efficient superintendent, much beloved by all. He was a very

capable surgeon, and before becoming superintendent was regarded as one ot the ablest physicians and surgeons in Virginia. Dr. Conrad followed him. Dr. Conrad was superintendent for three years, and very attentive to his duties. Dr. Conrad was succeeded by Dr. Benjamin Blackford, of Lynchburg, Va., on the 22nd of April, 1889. The capacity of the institution has been increased to eight hundred and fifty-seven beds. The grounds have been beautified, and the needful requisites for a well-kept hospital have been provided.

CENTRAL STATE HOSPITAL, PETERSBURG.

Until December 17, 1869, the colored insane were cared for in the Eastern Lunatic Asylum at Williamsburg. The law provided that "no insane slave should be received or retained in either asylum so as to exclude any white person residing in the State." On the above named date (Dec. 17, 1869) at the suggestion of Dr. Stribbling, and by order of Major-General Canby, military commander, an asylum for the colored insane of the State was established near Richmond. Dr. J. J. DeLameter was appointed superintendent and physician. When the State was re-admitted into the Union the governor re-appointed Dr. DeLameter, who continued in office until July, 1870.

On the opening of this hospital there were seventy-two patients transferred from the Williamsburg Asylum. This hospital was known as the Howard's Grove Hospital. June 7, 1870, the General Assembly of Virginia passed an act authorizing the establishment of the Central Lunatic Asylum near the city of Richmond for the reception and treatment of colored persons of unsound mind, the expenses of said asylum to be provided for and paid in the same manner as in similar institutions in the State. The Board of Directors of this new asylum held their first meeting on June 15, 1870, and elected Dr. Daniel B. Conrad, of Winchester, Va., superintendent. Dr. Conrad took charge of the institution July 1, 1870, and remained in charge until September 3, 1873. Dr. Conrad in 1886 was appointed superintendent of the Western Lunatic Asylum at Staunton, and remained in charge of that institution for three years.

Superintendent Conrad in his first annual report urgently recommended the appointment of a committee of the legislature to examine into and report regarding a site and the erection of an asylum for the colored insane of the state. At that time the asylum was located temporarily at Howard's Grove, near Richmond, and the buildings were all of wood, with only fifteen acres of land attached. This property was leased for a term of years by the state. By several enactments of the legislature, a permanent institution for the colored insane of Virginia was finally located at Petersburg, and opened for the reception of patients in April, 1885. At that time there were four hundred insane negroes in the state, all of whom were provided for in this institution.

Dr. Randolph Barksdale, upon the resignation of Dr. Conrad, September 3, 1873, was elected superintendent, which position he held until March 9, 1892. At that time the Readjuster and Republican parties got charge of the state government, and forthwith proceeded to turn out all asylum officers who were not of their political faith.

Dr. David F. May, a prominent Republican politician, was appointed superintendent in Dr. Barksdale's stead, and held the position until April 15, 1884, when Dr. Barksdale was recalled. In the meantime Dr. Barksdale was assistant physician under Dr. Gundry at the insane asylum, Catonsville, Md. After twenty-one years of faithful and efficient service as superintendent, Dr. Barksdale's health failing, he resigned in October, 1896, but was persuaded to remain as consulting physician. Dr. Wiiliam Francis Drewry, who had served awhile as second assistant, and for nine years as first assistant physician, was unanimously promoted by the Board of Directors to the superintendency to fill the unexpired term of Dr. Barksdale.

The Central State Hospital is beautifully located on a hill three miles from Petersburg, and consists of a large center building on the Kirkbride plan, and two separate buildings, one for epileptic patients. There are now in the institution eight hundred and forty patients. The institution has an abundant supply of pure water, and is lighted

with gas from its own plant. The farm attached consists of three hundred acres. All the colored insane of the state are well cared for in this hospital. The annual appropriations of the legislature amply provide for the proper maintenance of the institution.

At the centennial ceremonies of the Williamsburg Asylum in 1873, Governor Walker called attention to the fact that Virginia in her deep poverty had established the first asylum for the poor colored man ever organized.

SOUTHWESTERN STATE HOSPITAL, MARION, VA.

The large section of Southwestern Virginia was remote from the asylum at Williamsburg, and from the one at Staunton, and a hospital to be located in this section was first incorporated November 29, 1884, under the name of Southwestern Lunatic Asylum. Several counties in Southwest Virginia offered sites, and competed for the location, but the present site in Smith county was selected on account of its commanding and elevated position, and on account of the abundant supply of almost pure free-stone water which would flow by force of gravity all through the buildings from a spring two and a half miles up in the mountains—with an estimated capacity of three million gallons of water daily. The liberal people of Smith county also offered to furnish 208 acres of excellent land to the state free of cost should the asylum be located there. In 1887 a hospital with capacity for two hundred and seventy-five patients was completed at a cost of $160,000 for buildings and furnishing. It is beautifully located 2,250 feet above the level of the sea. The outside limit of accommodation was soon reached, and additional room was provided from time to time until at the close of the fiscal year 1896 the number of patients was three hundred and twenty-six. Dr. Harvey Black was elected superintendent in March, 1887. The first patients were admitted May 17, 1887. Dr. Black died October 19, 1888, and was succeeded by Dr. R. J. Preston, who is still in charge. The institution is well equipped for its work and all the modern methods for the care of the insane are used. There are regular religious

services, amusements and employment provided for the patients.

DR. RICHARD S. STEUART, AND THE MARYLAND HOSPITAL FOR THE INSANE.

During the session of the legislature of 1827-28, Dr. Richard S. Steuart (then in the active practice of his profession in Baltimore, and deeply interested in the cause of the insane) obtained with the aid of his friends, the passage of the law which established the "Maryland Hospital *for the Insane*." Prior to this period, the Maryland Hospital, established in 1797, had been a general hospital, including the sick as well as the insane, and had been leased by the state to Dr. John McKenzie and others who carried it on as a private enterprise, and under contract with the United States government received sailors of the navy and general marine. At the first meeting in April, 1828, of the Board of Visitors, consisting of members from Baltimore and the various counties of the state named in the act dedicating the hospital entirely to the treatment of the insane, Dr. Richard S. Steuart was elected president of the board and medical superintendent of the hospital. His early experiences in this capacity were most interesting, and if they had been written up would be equal to the famous stories in Warren's "Dairy of a Late Physician." He found insane men and women chained to the floor and resting only upon filthy straw, who had not been out of their cells for years. This condition he immediately undertook to reform, and striking off the chains from the limbs of these wretched creatures, he inaugurated a more humane treatment, which was the beginning of a new era in the care of the insane in Maryland. He obtained the services of the Sisters of Charity, and appointed as his assistant and resident physician the late Dr. William Fisher. Dr. Fisher was succeeded in 1838 by Dr. William H. Stokes, afterwards and for so many years the medical superintendent of the Mount Hope Retreat for the insane. During the first ten years of the service, finding the buildings too small, and illy adapted for the treatment of the insane, Dr. Steuart again applied to the legislature for the means to

enlarge and improve the hospital and, after a severe and exhausting struggle, obtained from the state a small appropriation with which the west wing was erected, thereby doubling the capacity of the house and relieving the overcrowded condition of the old east wing and centre building. During several years of this early period, Dr. Steuart carried the expenses of the institution upon his own shoulders, becoming personally responsible for the debts of the hospital, trusting to the legislature for reimbursement, a large part of which he never received.

About the year 1850, Dr. Steuart, with the consent and co-operation of the Board of Visitors, commenced his plans for the building of a new insane asylum, and went before the legislature with his petition for the means to purchase a suitable site for the erection of an institution adequate to the increasing demands of the period. He spent one year in examining every possible available locality, and finally decided upon the beautiful and most appropriate spot where now stands the Maryland Hospital for the Insane at "Spring Grove," in Baltimore county, the original name of the place. But here arose a difficulty. The state had appropriated the sum of only $5,000 for the purchase of a site, and this chosen site (a farm of one hundred and twenty-three acres, overlooking the city and harbor of Baltimore and the surrounding country) could not be obtained for less than $25,000. Nothing daunted, Dr. Steuart closed the bargain, paid the $5,000 on account of the purchase money, and undertook to raise the balance by private subscription. He headed the paper with his own name and $1,000, and from personal friends during the ensuing six months he obtained the balance in sums ranging from $1,000 down to $25. This $20,000 was presented to the state as an offering to the cause of the insane. During the following winter Dr. Steuart again undertook to obtain from the legislature the means to erect the new asylum for the insane at Spring Grove. This proved more difficult of accomplishment than any of his previous undertakings. Between the circumscribed views of the average egislator and the obstructive tactics of a corrupt political

lobby, he had well-nigh despaired of success when he called to his aid that distinguished philanthropist, Miss Dix, of Massachusetts. Most cordially did she respond to his call, for the cause of the insane had been her life work, as it had been Dr. Steuart's also. She established herself in Annapolis, and worked night and day until the object was accomplished and the appropriation obtained. The act included the appointment of a commission of five to build the new hospital, and included Dr. Richard S. Steuart of Baltimore, Gen. Benjamin Howard of Baltimore, Dr. Washington Duvall of Montgomery county, Col. Hanson of Frederick, and Dr. Humphries of the Eastern shore of Maryland.

The actual work was begun during the year 1853, and had progressed nearly to completion when, in 1861, upon the breaking out of the war, all work was suspended and so remained until 1866, when building operations were resumed and carried on to completion in 1872. As originally designed, as soon as the new hospital was finished and ready for occupancy, the patients were all transferred thereto, and Dr. Steuart took charge as President of the board and medical superintendent, with his cousin, Dr. William F. Steuart, as resident physician. It should be mentioned that the original "Board of Visitors" was made by the act creating them, perpetual, that is, having the right to fill vacancies in their board whenever such occurred, and Dr. Steuart continued uninterruptedly to act as President of the board and medical superintendent from the time of the creation of the board up to 1862, when owing to the political feeling created by the war then going on, a number of the members of the board, including Dr. Steuart, were suspended because they declined to take the oath presented to them by the federal authorities then in power in Maryland. Such members as could and did take the oath were at that period continued in charge of the old hospital on Broadway, with Dr. John Fonerden as medical superintendent and Mr. Enoch Pratt as President of the board. Dr. Fonerden had been the assistant and resident physician from the time of the resignation of Dr. William H. Stokes to take charge of the then new Mt. Hope Retreat,

established by the Sisters of Charity when they left the Maryland Hospital. Dr. Fonerden's incumbency covered a period of some twenty years.

As soon as the war was over and the Democratic party returned to power in the state, the old board were all reinstated, and Dr. Steuart resumed his office as President and medical superintendent. He occupied this position, therefore, at the time of the removal to the new hospital and until within a few weeks of his death which occurred July 13, 1876. He, therefore, served the state—deducting the five years of the war—continuously for forty-three years. The first years of his service were without compensation of any kind. Later, he accepted a small salary, and only from the time of his taking charge of the new hospital did he receive a salary which compensated him for his time and services. Dr. Steuart was an enthusiast in his work, and gave the best efforts of his life to the cause of the insane. The reforms in the management and treatment of the insane which he instituted and carried out were far ahead of their day, and have continued to bear fruit to the present time. The humane and scientific treatment inaugurated under his management fifty years ago, will compare favorably with that of the present day in any hospital or in any country. Dr. Steuart was a native of Maryland, and both his father and his grand-father were physicians. He was born in 1797, educated at St. Mary's College, graduated as a physician from the University of Maryland in 1822, and died in 1876, at the age of seventy-nine years. Before closing this brief sketch, it should be again mentioned that it was through Dr. Steuart's influence with Mr. Johns Hopkins—for many years a member of the Board of Visitors as well as a personal friend of Dr. Steuart—that the present site of the Johns Hopkins Hospital was chosen for the location of that magnificent gift to the State of Maryland. Dr. Steuart was succeeded by Dr. J. L. Conrad, who had held the position of resident physician for some time. He remained in charge until March, 1878, and was succeeded by Dr. Richard Gundry in June of that year.

Dr. Richard Gundry was an Englishman by birth, and

was educated in Canada and at Harvard. He was a superintendent of asylums in Ohio for twenty-three years, where he did most admirable work. He was elected to the superintendency of the Maryland Hospital in 1878, and held that position until he died in 1891. He was a man of remarkable ability, a great reader, a fine writer, and a deep thinker. Dr. Rohé succeeded Dr. Gundry, and on his being put in charge of the newly-projected Second Hospital for the Insane, he resigned and was succeeded by Dr. J. Percy Wade, who is now superintendent. The hospital has now four hundred and ninety-five patients, of whom forty-seven are colored. The water supply is abundant, and the hospital is heated by steam and lighted by electricity. There are one hundred and thirty-six acres of land, fifty of which are in cultivation and twenty-eight in grass. The buildings are handsome and commodious, and the equipment required for a first-class hospital is provided. The Second Hospital for the Insane was decided upon in 1894, and an estate near Sykesville, Md., consisting of seven hundred and fifty acres, was selected, and arrangements were made for the erection of buildings consisting of a group of detached cottages or pavilions with a service building. In July, 1896, the first patients were received, and at the close of the fiscal year there were twenty-three patients. The hospital is in its infancy, but every provision has been made for its future efficiency. Dr. George H. Rohé is the superintendent.

While I have not attempted in this paper to give an account of the private asylums for the insane in the South, and have confined myself to the state institutions, I feel that an exception ought to be made in the case of two institutions, the Mount Hope Retreat, near Baltimore, and the Sheppard Asylum for the Insane. The Mount Hope Retreat is an institution for the insane conducted by the Sisters of Charity. Up to 1840 these good women had charge of the insane in the Maryland Hospital, but they then established an independent institution. Dr. Stokes, so well known for his many excellencies, was the attending physician for nearly fifty years. Dr. Stokes was born

at Havre de Grace and educated in Baltimore. He spent a few years in Mobile where he passed through two yellow fever epidemics, then traveled in Europe and studied in Dublin. Returning to Baltimore in 1842 he was chosen as attending physician to St. Vincent's Asylum, which was subsequently called Mt. Hope Retreat, and remained in charge until shortly before his death, which took place in 1893. He was a man of fine attainments, and had conferred upon him many of the honors of his profession. He was an old school Maryland gentleman of courtly dignified bearing, somewhat reserved and quiet, but always warm-hearted. He was succeeded by Dr. Charles G. Hill, who is now superintendent of the Retreat. This is a private institution, but it is most elegantly equipped. It has handsome well-finished buildings, large grounds, and is admirably conducted. It has at the present time, nearly six hundred patients. The grounds are ample and beautifully laid out.

KENTUCKY.

Among the early physicians to asylums, Dr. Samuel Theobald, for several years attending physician to the Eastern Kentucky Lunatic Asylum at Lexington, was notable. About 1830 he published an account not only of his institution, but also of the care of the insane in Kentucky prior to the establishment of the asylum for the insane.* Dr. Theobald says that in the early days Kentucky, like most of her sister states, provided for her insane paupers by the appointment of one or more individuals to take care of them upon terms fixed at the discretion of the judge before whom the case was presented. For this purpose the state paid $15,500 in 1822 and $18,000 the following year.

The disadvantages of the existing system were so apparent, and the needs of better provision so great, that in 1821, Governor Adair said in his message to the legislature that the old system of supporting the insane had proved to be wholly inadequate to the purpose of restoration to mental soundness. He therefore proposed that the state establish an asylum for the insane, giving as an addit-

*Transylvania Journal of Medicine 1829-1830.

ional reason that, "if only one out of twenty of those unfortunate beings, laboring under the most dreadful of all maladies, should be restored, will it not be a cause of great gratulation to a humane and generous public." Governor Adair also urged as one reason for establishing a State insane asylum that "it would prove highly beneficial to the medical school of Transylvania University, which would in time repay the obligation by useful discoveries in the treatment of mental maladies." In 1822, in consequence of this appeal, the legislature of Kentucky, for humane and politic motives, decided upon the establishment of an asylum for the insane. The sum of $10,000 was appropriated for the purpose of carrying the act into effect. The commissioners appointed in accordance with the act proceeded promptly to the selection of an advantageous site containing about seventeen acres, and having thereon a spring of never-failing water. The tract selected had also a large and handsome brick edifice which had been constructed about the year 1817 by an association of individuals as a private hospital, called the Fayette Hospital, for the diseased of every character; but the company had failed in this humane intention and the building remained unfinished and unoccupied.

Having purchased this property the commission proceeded immediately to have the building finished, and such additional improvements made as were then deemed adequate to the object in view. On May 1, 1824, the house was opened for the reception of patients. The commission of ten deputed to carry into operation the act relating to the asylum "were required scrupulously and carefully to examine the case of every subject brought to the asylum, distinguishing by all means in their power between such persons as might be sick or imbecile only, and such as were actually insane or of unsound mind—admitting only the latter. Also carefully to distinguish maniacs, or persons who are dangerous, from such as are quiet and peaceable, making orders for their confinement or otherwise. The first day of May ensuing the passage of the act was fixed as the period at which all laws committing persons of unsound mind to the care of committees, and charging the

treasury of the state therewith, should cease; and that thereafter the care and safe keeping of all such persons should be confided to the lunatic asylum." The commission was further invested with full power to discharge restored patients. It was further enacted that no person should be supported at the asylum at the public charge who had an estate for his support. Andrew Stainton was made superintendent and Dr. James C. Cross was appointed resident or house physician. The medical faculty of Transylvania University, then a famous medical school, in a spirit of humanity and liberality which reflects much honor on them, tendered their services gratuitously as consulting physicians. In a short time Dr. Cross resigned. He was succeeded by Dr. William L. Thompson, who also had a short service. Dr. Theobald became attending physician in January, 1826, and served several years.

The laws of Kentucky in 1842 still allowed the quiet and peaceable to be maintained at their own homes out of the public treasury. There was also considerable prejudice against hospital establishments so that few but the worst cases either of paupers or the wealthier class were sent to the asylum. The asylum was primarily intended for the insane poor alone, but for some years before 1842, had received several other patients from Kentucky and other states at the cost of two dollars and fifty cents per week. Dr. Bush was physician to Lexington Asylum in 1841 and his report, according to Dr. Jarvis, showed great improvement in the care of the insane and the legislature was inclined to grant desired appropriations. It is interesting to note that tickets of admission to the asylum were issued to the members of the medical class of Transylvania University. The faculty of the medical school had the hospital in charge until 1844. It was a mad-house for the safe-keeping of lunatics rather than an asylum for their care.

With the coming of Dr. J. R. Allen in 1844 there was a decided change for the better. He remained in charge until 1855, when he was succeeded by Dr. W. S. Chipley who held the place for fifteen years. Dr. George Bryant, Dr. Chenault, Dr. W. D. Bullard and Dr. F. H.

Clark all had short terms, and January, 1896, Dr. W. E. Scott, the present superintendent, was appointed. We learn from a report of Dr. Scott, that the farm consists of two hundred and fifty acres of land; that there were in the asylum in September, 1896, seven hundred and ninety-one persons, of whom one hundred and twenty-eight were colored. The buildings, Dr. Scott reports, have some of them stood for eighty years, and should be removed and better buildings erected.

WESTERN KENTUCKY LUNATIC ASYLUM.

The foundation of the institution was laid in 1849. The building was opened for patients in September, 1854. It was burned in 1860, rebuilt in 1861 and 1862, and reopened in 1863. The first superintendent was Dr. Samuel Annan, who was in charge from 1855 to 1857. He was succeeded by Dr. Francis G. Montgomery who remained in office until 1863, when he was in turn succeeded by Dr. James Rodman, who was superintendent of the institution continuously to April 20, 1889. Then Dr. Barton W. Stone was appointed superintendent. He continued in office until January 30, 1896, when he was succeeded by Dr. Ben Letcher, who is still in charge. The cost of the buildings as they now stand is about $310,000. They have a capacity of five hundred and fifty patients. The asylum has been overcrowded with patients for the past ten years and now has an insane population of six hundred and twenty-five. The first provision for admission of colored patients was in February, 1879. The colored population is now about one hundred and twenty-five. The Eastern Kentucky Asylum admitted all the colored insane of the state up to February, 1879. At the present time all asylums admit the colored insane of their respective districts.

CENTRAL KENTUCKY ASYLUM.

The asylum now know as the Central Kentucky Asylum was opened in August, 1893, under the care of Dr. C. C. Forbes. The buildings, which had been designed as an Industrial School for Juvenile Delinquents, were adapted to the uses of the hospital, and when the institution began its work, had a capacity for one hundred and seventy patients.

Dr. Forbes remained in charge for nearly five years. Dr. Gale succeeded him and remained in charge for nearly five years more. Dr. Henry K. Pusey, who followed him, was in charge of the institution for two terms, from 1884 to 1886, and from 1891 to 1896, Dr. Burns succeeding his first term. Dr. H. F. McNary is now in charge.* The institution, as will be seen, has had a number of superintendents, but perhaps to none of them was it as much indebted as to Dr. Pusey, who was in charge of it for two terms and who died while he was superintendent, on December 2, 1896. Dr. Pusey was a recognized authority upon hospital architecture and sanitation, and he was one of the first to favor the building of houses for the insane no more than two stories in height. The Board of Directors of the Lakeland Asylum for the Insane testified their appreciation of him by passing suitable resolutions, and by naming the latest addition to the asylum buildings "Pusey Hall." The sentiment of the legislature, largely influenced by him, became more and more liberal, and appropriations of a more generous kind were made, until at the present time the institution has one thousand two hundred patients under its care, white and colored. It is well equipped in every respect, has electric lights and a full water supply, commodious and attractive buildings, and large grounds of five hundred and fifty acres, of which seventy acres are in the garden. There is a building for colored patients, of whom there are now two hundred in the asylum.

WEST VIRGINIA.

When West Virginia was a part of the present State of Virginia it was decided by the general assembly to establish an asylum for the insane in the far west of the state, and Weston was selected as the point. The first report of the directors was made in 1859. The asylum, though completed, was not opened for some years. The war came on, and the State of West Virginia was separated from the old State. It was not until 1864 that the institution began its work. During the war the State of Ohio had received in its asylum at Columbus the insane from West Virginia. Before the war

*Dr. McNary died May 12, 1897.

they had been sent to Staunton and Williamsburg. As soon as the West Virginia Hospital was able to receive them, the patients came from each of these institutions. Dr. Hilis, of Columbus, Ohio, was the first superintendent, and retained his place until 1871, when he was superseded by Dr. Camden. Dr. Hilis had been superintendent of the Asylum for the Insane at Columbus, and after leaving the asylum he traveled extensively in Europe, and then returning to Ohio became superintendent of a Reform School for Girls. He died about 1890. Dr. Camden was in charge of the institution until 1881, about ten years, when he resigned, and was superseded by Dr. Bland, who remained in charge for two years only. Dr. Lewis, who succeeded him, was in charge for five years, and was followed by Dr. W. P. Crumbacker, the present superintendent. The institution is well equipped. The buildings are commodious and attractive. The section in which they are located is picturesque and healthful, and the provisions for the insane ample to meet all demands, since the establishment of a second hospital at Spencer. There are now in the asylum at Weston nine hundred and thirty-eight patients.

The asylum at Spencer was completed in 1893. The buildings are of brick and stone, with slate roofs and iron stairways, and the asylum is equipped with everything necessary and convenient. The buildings are heated and ventilated with the fan system, and with a capacity for a temperature of seventy-two degrees. The asylum is capable of providing for four hundred and fifty patients. It has one hundred and fifty acres of land connected with it, and the buildings have cost up to this time over $200,000. The institution has in it now two hundred and thirty-five patients and is under the superintendency of Dr. W. D. Row. It is located in a healthful mountain town, and, with everything favoring health of body and mind, it is admirably adapted to do the work for which it was designed.

NORTH CAROLINA.

The public benefactress of the insane, Miss Dix, visited North Carolina to interest the people in making some provisions for the proper care of the insane. There were

at that time but few great railroads in the state, and she was compelled to undergo the great inconvenience and even hardship of the primitive means of travel to visit the remote mountain counties, but no hardship or privation for a moment deterred her. While a favorable public sentiment to some extent throughout North Carolina had been awakened by her efforts, when the legislature assembled she met with great opposition from the small politicians of that body. Hon. J. C. Dobbin, afterwards Secretary of the Navy, was Speaker of the house. She attempted to secure Mr. Dobbin's co-operation and valuable aid by interesting his wife in the cause. Mrs. Dobbin became deeply interested in the enterprise, but unfortunately died during the session of the legislature, and before she had succeeded in greatly interesting her distinguished husband in the good work. Failure now appeared to be inevitable. Miss Dix, not discouraged, and with the ready tact of her sex, appealed pathetically to him in the name of his wife, and as a memorial to her to arouse himself and give his great influence in behalf of his afflicted fellow citizens. He went to the hall of the house, descended from the chair to the floor, and it is said made the most eloquent and effective speech ever delivered before a North Carolina legislature. It took the body by storm, and from that moment the establishment of the hospital was an assured fact. A bill was passed in 1849 establishing a state hospital for the insane to be located on a beautiful river near Raleigh, and named in honor of the distinguished lady, Dix Hill.

Dr. Strudwick, of Hillsboro, was elected first superintendent, but declined, feeling himself incompetent by reason of the fact that he had no experience in the care and treatment of the insane. Dr. Edward C. Fisher, an assistant physician at the asylum in Staunton, Virginia, was then elected superintendent of construction. When he assumed supervision of construction the massive stone foundation of the main building had been laid and the walls of the central portion and north wing had been completed and covered. The original plan did not permit all that might have been desired; it, however, embodied the main features most

to be desired in a hospital building for the insane. Throughout the process of construction the work of Dr. Fisher was characterized by careful economy and conscientious and untiring faithfulness to the duties incumbent upon him. On October 1, 1855, he was elected superintendent and physician of the North Carolina Insane Asylum. The first patient was admitted by him to the asylum on February 22, 1856.

Dr. Edward Fisher was superintendent and resident physician until July 7, 1868. During the period of re-construction he was removed for political motives by the Republican party, but about 1871 he again became connected with the asylum for the insane at Staunton, Virginia. In 1881 during the readjustment turmoil in that state he was again removed from his active life work, but was restored to his place in 1884 and remained until his death. He was the pioneer of the work for the insane in North Carolina, and there is no sadder chapter in the history of the institution at Raleigh than his displacement. He was a competent alienist, a gentleman, modest, bright, noble and blameless, and his life was one of long usefulness. He was born in Richmond, Va., in 1809, and died at Staunton in 1890. Dr. Fisher was succeeded at Raleigh by Dr. Eugene Grissom, and he by Dr. W. R. Wood, who served one term and resigned, and he by Dr. George L. Kirby, who is still in charge. The present capacity of the institution is four hundred and twenty patients. Much of the credit of this institution is due to Dr. Francis Taylor Fuller. He was the first assistant physician for nearly forty years. The following extract is taken from the North Carolina *Medical Journal*, October, 1893:

"Dr. Fuller was born in Granville county, North Carolina, June 14, 1835, and died September 14, 1894. He was educated at South Lowell Academy, in Orange county, afterwards teaching school for a time before commencing the study of medicine. He graduated in the Medical Department of the University of Pennsylvania in the spring of 1856, and in a short time thereafter he was elected assistant physician in the North Carolina Insane Asylum at Raleigh, and entered upon his life-long work. For twelve

years he served as assistant physician to that excellent, intelligent, Christian gentleman, Dr. Edward C. Fisher, superintendent, who was a model of all that was required in a man to administer to the mental, moral and physical diseases of those under his care. For twenty-one years he was the assistant physician under Dr. Eugene Grissom, of Granville county, who succeeded Dr. Fisher in 1868. During all these years his intelligent, faithful service was justly appreciated by these gentlemen. No man was ever more faithful and devoted to his work than he. He loved the institution and its inmates and devoted his life to their welfare. He was an intelligent, high toned, Christian gentleman, honorable and upright in everything."

MORGANTON, NORTH CAROLINA.

In 1875 a new asylum was erected at Morganton in the western part of the state. The State Hospital at Morganton in the mountain region, commands one of the finest landscapes to be found in the South, and shows a death rate so low as to be of general remark in the reports. It is built of brick on the Kirkbride plan, having a frontage of nine hundred and eighteen feet and a depth of forty feet. Dr. P. L. Murphy, having been elected superintendent in December, 1882, has been in continuous charge since its opening in April, 1883. Attached to this institution is a large and finely conducted farm, which has been a source of profit to the state and of incalculable usefulness to the patients in supplying them with an elective employment suited to the former life of the greater number and recreative to all. All modern appliances in construction and design are found here. The present capacity of the institution is seven hundred and eighty-five. The number of patients is, male, three hundred and forty; female, four hundred and twenty-five. The cottage plan, as advocated by Dr. Murphy, has been endorsed by the present legislature, though no appropriation will be made until 1898 to provide for the large number of insane in the Morganton district now in the jails and poor-houses or confined at home.

Congregate dining-rooms have been erected in the rear

of each wing of the main building. The non-restraint system prevails. The record of cures for the past year is over fifty per cent.; the average for the entire period is about forty-two per cent., and this despite the fact that upon the opening of the hospital it received by transfer from the parent institution at Raleigh all the chronic insane resident in the Western district. The water supply of the hospital is abundant, and great care is taken to preserve its purity, the whole water-shed being the property of the state, much of it being in original growth timber. A hook and ladder company has been organized from the employees of the institution, and a large reservoir affords quick command of water in case of fire. Besides this, fire-proof sections are built between the wings and the administration building so as to isolate and confine to one section any flame that may break out. The complete ventilation of the entire building is effected by rotary fans in the engine room. This institution has the reputation of being the model institution in the South, both in construction and administration.

EASTERN ASYLUM FOR COLORED INSANE, GOLDSBORO.

The large number of negroes in the eastern portion of the state, and the great increase of insanity among them, made larger accommodations necessary, and an asylum exclusively for the colored insane was decided upon. In March, 1875, the general assembly of North Carolina appropriated $10,000 to provide a branch asylum for the colored insane at Wilmington, to be subject to the same superintendence, rules and regulations as the institutions for the whites at Raleigh, where some negroes had been under care since emancipation. The act also provided that the expenditure for each patient should not exceed two hundred dollars per annum. As the directors empowered to carry out the purpose of this act were unable to effect a lease of the Marine Hospital building at Wilmington, the first steps toward establishing a separate hospital for the colored insane of North Carolina were temporarily obstructed. They finally located the Eastern Hospital, as it is called, two miles west of the city of Goldsboro, on an eminence near Little River. The

building was completed and ready for the admission of patients August 1, 1880. The buildings are commodious and handsome and have a capacity of four hundred and twenty-five patients. The present number is three hundred and eight. There are attached to this institution three hundred and twenty acres of land, but much of it skirts the river, and being subject to overflow, is not cultivated. The amount farmed is one hundred and seventy-five acres, and the products are such as are consumed by the population of the asylum. The institution is in successful operation and doing a good work. Dr. W. H. Moore was the first superintendent, but served only a few months, when he died. Dr. J. B. Roberts was elected his successor, and served for six years. He was then succeeded by Dr. J. F. Miller, who is still in charge.

SOUTH CAROLINA.

In the early days of the South Carolina colony, as was probably the case in all the colonies, the insane, whether free or slaves, were cared for in almshouses where such existed, but the pauper insane, white and black, were provided for and supported at the expense of the parish. During the excitement before the revolutionary war concerning the stamp act, it appears from incidental allusion that a mad-house, as it was called, existed in Charleston, but we have no definite information about it. In 1821, through the combined efforts of Mr. Farrow of Spartanburg, and Mr. Crafts of Charleston, the legislature passed an act appropriating $30,000 for the erection of an asylum for the insane, and a school for the deaf and dumb, in Columbia, the State capital. The commission appointed to investigate the subject reported that the association of the two classes in one institution was impracticable. The whole amount was expended in the erection of an asylum for idiots, the insane and epileptics. Not until 1828 was the institution ready for the reception of patients, when its doors were opened alike to pauper and pay patients, the paupers being supported by the counties. The institution was managed by nine trustees, or regents, who were residents of Columbia. Dr. James Davis, for many years an eminent practitioner of the

city, was made visiting physician, and a layman was made superintendent. Of Dr. Davis (born in December, 1775; died August 4, 1838) it was written: "He was a man of genius and learning, and would have been distinguished in any intellectual pursuit to which he had directed his attention. Devoted to his profession, he brought to his practice a rare combination of all the qualities requisite to success—knowledge, sagacity, energy and enthusiasm. He was the earliest and most zealous and most efficient contributor to the foundation and success of the Lunatic Asylum."

In 1835 Dr. D. H. Trezevant succeeded Dr. Davis, as visiting physician, but like his predecessor, he was able to give the institution only a small part of his time. The undertaking was largely an experiment, and although receiving pay patients from adjoining states, its means of support were very limited. The people had not learned to appreciate an institution of this kind, and for eight years the asylum had a feeble life. In that time it had three non-medical superintendents. In 1836 a change was made by the election of Dr. J. W. Parker as superintendent and resident physician, but Dr. Trezevant continued his services as visiting physician. These two gentlemen continued to serve the institution in their respective capacities until 1858, when Dr. Trezevant resigned. Dr. Parker continued his connection with the institution for forty-two years. Upon the board of regents had been many of the most broad-minded and public-spirited citizens of the state. In establishing an asylum with the experience of only one state as a guide, it was natural that errors were made by South Carolina. The chief mistake was in locating the institution within a city upon a square of four acres. It's location has always been an obstacle in many ways to its success, and although from time to time great efforts have been made to remove the asylum to the country, it has never been possible to obtain legislative sanction to the step. Errors of construction were also made, which to this day menace the health of the patients who occupy the old building. This was erected according to the ideas of inexperienced men in the first quarter of the century, and still remains in many ways

unchanged. While the institution served for years as a home for many insane not only of South Carolina, but also of North Carolina, Florida, Alabama and Mississippi, it also performed the important service of warning the other Southern States to establish their asylums in the country. In the fifties, increase in the number of insane demanded the erection of new buildings in Columbia or elsewhere. After long and bitter controversies between the regents, the asylum officers themselves, and the members of the legislature, it was most unfortunately decided in 1856 to continue the urban policy by building on land separated from the old building by a city street. This step practically committed the state to the policy of maintaining her insane within a city. The appropriations permitted the erection of only the first section of the south wing before the war, and by slow additions a building on the linear plan, accommodating four hundred and fifty patients, was completed in 1885. The institution was most creditably maintained during the civil war through the energy and foresight of Dr. Parker, the superintendent.

In passing, it may be remarked that the maintenance of our insane hospitals during the four years' struggle is an important chapter in the history of these institutions, and is most worthy of separate mention in our chronicles. During the period of reconstruction Dr. J. F. Ensor succeeded Dr. Parker as superintendent. Dr. Ensor discharged his difficult duties with fidelity, even to the point of getting supplies on his personal credit when the Governor of the State refused his endorsement. Under his advice South Carolina adopted the principle of state care for all pauper insane as early as 1870. In 1876 Dr. P. E. Griffin succeeded Dr. Ensor. Under his administration the institution purchased more land, bringing the total acreage up to three hundred and fifty. Additional wards of brick were added to the new building, until it was finally completed. Dr. J. W. Babcock succeeded Dr. Griffin in 1891. As the last three gentlemen are still living, further comment upon their work is omitted. To-day the institution consists of the old building, accommodating two hundred patients, the new building with four

hundred and fifty beds, nine wooden pavilions for colored patients, a cottage for Miss Dix, accommodating thirty white women of the quiet class, three buildings for officers and families. Within two years the old style name of asylum has been changed to State Hospital. There are four infirmary wards, and a training school has been in operation since 1892. By the purchase of adjoining property and the closing of streets the whole hospital has been brought into one enclosure, and the grounds afford ample room for exercise and recreation. The institution is lighted by electricity, and gets its water supply from the city. The property consists of three hundred and fifty acres, of which two hundred and thirty acres are fertile farming lands. The crops produced aid materially in the support of the institution. A brick structure now being built for colored men bears the honored name of Parker. The hospital is discharging a useful function in the state, and is meeting with what legislative aid it asks for and deserves. The last report shows a daily average of eight hundred and fifty-four.

GEORGIA.

Up to 1837 Georgia had made no provision for the care of her insane. They were not many, but they were fearfully neglected. That year there came to Milledgeville a Northern philanthropist, whose object was to petition the legislature to do something for them.

"No blaring trumpet sounded out his fame;
He lived, he died—I do not know his name"

Milledgeville, the town in which the legislature met, had a small faculty of distinguished physicians, Drs. White, Fort, Case and Green, and he solicited and received their hearty co-operation in his worthy effort. These physicians, aided by Drs. Phillips and Arnold and Judge Harris, who were members of the legislature, appealed to that body for assistance. The legislature yielded somewhat reluctantly to their entreaty, made an appropriation, and apppointed a commission. The commission bought for a small price forty acres of sterile pine land located on a high hill overlooking the town, and situated about two miles from it. Plans for buildings were secured and work was begun, but in the

early part of 1842 none of the buildings were finished. It was a time of great financial depression, and the state was burdened with debt so that the legislature ordered all work to be confined to one building. This was made ready to receive patients, and in December, 1842, the first patient was admitted. The plan of self-support was adopted. The counties were to pay the expenses of their pauper patients, and the friends of patients who were able to pay were to provide for their dependents. This plan was changed to State care of the pauper insane about 1846. Up to 1877 patients were received from other states, but at that time the general assembly passed an act sending all non-resident patients to their respective states, on account of the over-crowded condition of the institution. During the same year an act was passed making the institution free to all *bona fide* citizens of the state. This act also provided that relatives of patients could deposit with the steward funds for extras to be used by the patients individually, but no part of this was to go to the support of the institution.

When the institution was first opened it was in charge of a layman, and a physician was employed only when his services were needed. These methods were gradually changed. In 1843 Dr. David Cooper was elected superintendent. He was a man of ability, but of great eccentricity, and was entirely unacquainted with the real demands of his work. Had he known these demands, he would have found it difficult in the state of things then existing to have complied with them. He retained his position three years, and during that time had but few patients. The attention of the trustees had been directed to Dr. Thomas F. Green as one who was likely to succeed with a very unpromising enterprise, and he was persuaded to accept the superintendency. Dr. Green was the son of an Irish exile who was in the rebellion of 1798. His father was a physician, a man of high culture, and was professor in the State University. Dr. Green was born in Beaufort, S. C., in 1803. He received his general education at the State University in Georgia, and medical, at Charleston, S. C. He settled in Milledgeville as a physician, and was a successful and pop-

ular practitioner when he was chosen as superintendent of the asylum. The patients he found in the asylum were of the worst possible description. Only those who were a burden at home, and for whose recovery there was no hope, were sent to the asylum, which being regarded as a madhouse, inspired the people with terror.

While Dr. Green had a difficult task before him he was admirably adapted to perform it. He was a man of kindest heart, most genial manner, and of great enterprise and energy. He soon secured the confidence not only of the patients, but of the people of the whole state as well. He succeeded in obtaining appropriations year after year, in making improvements, in securing a suitable corps of attendants, and in every way providing for the treatment of the insane. He had helpful assistance in the visit of Miss Dix in 1852, and, being himself a man of great intelligence, his own measures were eminently wise. He remained in charge of the asylum from 1847 fo 1879, when in the beauty of a happy and serene old age, with eye undimmed and undiminished mental vigor, he suddenly passed away. His monument was the magnificent institution which he had watched over almost from its foundation. For twenty years Dr. Green and myself had been associated as colleagues in the management of the asylum, and when he died I was selected to take charge of it. I have been in charge for nearly twenty years, and in connection with the institution for thirty-five years. In none of the exciting political campaigns of the state has there been at any time any decided interference with this benevolence, and the legislatures have generously and generally granted all the requests made by those in charge.

The asylum is charmingly located. A magnificent view is had from every direction, and perhaps in no part of the land is there a better health record. The completion of the second building in 1847 enabled the trustees to make markedly beneficial changes in the asylum. The female patients were placed in the new building, thus entirely separating them from the males. This enlargement also offered greater facilities, and the increased appropriations of money

for maintenance enabled the authorities to make many improvements, the substitution of white attendants for negroes, who had formerly discharged this duty, being one of them. In 1849 it was found urgently necessary to make additional provision for the insane of the state. Plans and estimates were submitted to the legislature for enlarging the asylum accommodations. The plan contemplated a large, showy building to be erected in front of the existing wings, and additions to the latter which would make the structure in the shape of the capital "E," or, as it is called, the Kirkbride plan. The legislature appropriated $10,500, and in 1841 $24,500 for the enlargement of the institution. Every dollar of this appropriation was expended upon the foundation of the present center building before the walls had reached the surface of the site. Supplemental appropriations were made as follows: 1853, $56,500; 1855, $110,000; 1857, $63,500; 1858, $30,000. The building was completed in 1858. In addition to furnishing quarters for asylum officials and necessary offices, it provides accommodations for a large number of patients, each patient occupying a separate room ten by twelve feet. This building, as all others attached to it, is divided into sections or wards, each provided with a dining-room, parlor, etc., and all modern improvements. In 1870 and 1871 an appropriation amounting to $105,855 was voted for enlargement of the asylum. This sum was expended in enlarging the main building. In 1881 at the urgent solicitation of the board of trustees the legislature decided to erect two separate buildings for white convalescents, one for males and the other for females, and appropriated $165,000 for this purpose. In 1883 a supplemental appropriation amounting to $92,875 was voted by the legislature. In 1893 the legislature, after an urgent appeal from the board of trustees, voted $100,000 for the erection of additional buildings for white and colored insane. The building for whites has a capacity for six hundred patients, and the two annexes to the building for negroes will afford accommodation for about three hundred patients.

The emancipation of the negro population in 1865

necessitatsd asylum accommodations for the insane of this race. In 1866 the legislature apppropriated $11,000 for an insane asylum for negroes. The building was located on the grounds of the asylum for the whites. In 1860 additional accommodations for this class being deemed necessary, the legislature appropriated $18,000 for enlargement of the building for negroes. In 1879 the legislature appropriated $25,000 for the same purpose, and in 1881 an appropriation of $82,166 for a new building and heating apparatus for the same was made for the colored insane. These several enlargements provided for five hundred and forty-one negroes. The overcrowded condition of the negro building, and the urgent demand for care of a number of negro insane who could not be admitted for want of room, caused the board of trustees to begin enlargement by adding two annexes one hundred and twenty-eight by thirty-one feet each, four stories high, to the existing negro asylum. These additional buildings, as above stated, provide accommodation for about three hundred patients in the negro institution. We have at the present time six hundred and twenty-five negro patients.

There have been made from time to time large purchases of land adjoining the asylum until the institution now has over three thousand acres in one body. The institution has its own water works, the water being furnished from a bold stream on its own grounds, and has, besides, a well nine hundred and sixty feet deep, much of it through solid rock. The institution has a training school for nurses, and a well-equipped laboratory under an efficient neuro-pathologist. The non-restraint system has prevailed for many years. There are at the present time over two thousand one hundred patients in the institution. The asylum comprises a number of buildings as follows: First, the main building. The front presents a handsome, showy brick structure, three stories high, of Grecian architecture. With the exception of the capitol building in Atlanta the center asylum building is the handsomest edifice in the state of Georgia. Besides the superintendent's apartments, rooms for visitors and offices, the building accommodates about

five hundred patients, with necessary nurses, etc. Second, two brick buildings for convalescents, three stories high, accommodating one hundred and forty patients each and nurses. These are located on each side of the front of the center building, about five hundred feet from the latter, and about one thousand feet apart. Third, two brick detached buildings, three stories high, in the rear of the center edifice, accommodating about one hundred patients each. Fourth, two one-story wooden detached buildings for patients too feeble to ascend to the higher floors, accommodating forty patients each. Fifth, the building for negroes located a quarter of a mile in the rear of the building for whites. This is also of brick, three stories high, and like the building for whites, provided with all modern conveniences. It comfortably provides for six hundred and fifty insane negroes, besides the supervisor and attendants. About a mile distant from the asylum proper is located the contagious diseases hospital which, as its name indicates, is reserved for treatment of any contagious disease which may be brought into the institution. It accommodates sixty patients and attendants. In addition to the above described buildings, the new building for whites accommodates six hundred patients. The total cost of the land and buildings is more than one million dollars.

ALABAMA.

Miss Dix began to agitate the foundation of an asylum for the insane in Alabama in the autumn and winter of 1849. The State Medical Association came to her aid in 1851 and 1852, and through their efforts a bill was introduced and passed appropriating $100,000 for this purpose. When this was exhausted $150,000 more was appropriated. The foundation of the building was laid in 1852, and it was ready for occupancy in 1860. The buildings were designed on the Kirkbride plan, and were calculated for three hundred and fifty patients. When the institution was ready for opening, and a superintendent was to be chosen, the trustees selected Dr. Peter Bryce, at the instance of Miss Dix, who had met him in Columbia, S. C. He was a young man twenty-six years old when he came to take charge of

the new enterprise. Dr. Bryce belonged to an excellent South Carolina family, and had been educated at the South Carolina Military Academy. He then graduated in medicine in New York, and afterwards pursued his studies in Europe, especially in Paris. As soon as he returned to America he was selected as assistant physician in the State Lunatic Asylum of South Carolina. Subsequently for a short time he occupied the same position in Trenton, N. J. Although quite a young man, he was selected as the first superintendent of the Alabama Insane Asylum. He at once evinced especial fitness for the position to which he had been chosen. He was remarkable for the skill with which he organized and managed an institution of this kind. Possessed of a mind of high order, he had had advantages of unusual value. He, however, had been in this position but a year when the war began, and the great difficulty which all the superintendents found in those trying days, he was compelled to meet. He did so successfully. During the darker days of reconstruction he held his place, and amid all perplexities safely found his way through. He inaugurated great improvements, and during the thirty-two years of his administration he brought the asylum to the front rank among the institutions of its kind. When he died in 1892 there were eleven hundred patients in its care. The legislature of Alabama testified its high appreciation of his services by changing the name of the Alabama Insane Hospital to "Alabama Bryce Insane Hospital." His last resting place is the lawn in front of the institution to which he had devoted his life. This great and good man remarked upon his death-bed that it was "probably a good time" for him to die. He had seen the successful result of his life work, in the excellent name and good condition of the hospital, secured almost wholly through his own energy and good judgment.

After Dr. Bryce's death, Dr. J. T. Searcy, of Tuscaloosa, who had been president of the board of trustees, was elected superintendent, and is now in efficient charge of the hospital. From his last report it appears that there are about one thousand two hundred and fifty patients now in

the institution. The same general industrial system, by which the patients are employed toward their own support, that has characterized this hospital for a number of years, is maintained with increased success. This hospital over fifteen years ago under Dr. Bryce adopted the non-restraint system of managing patients, which is still advocated and maintained. The institution has a training school for nurses, and a well-equipped laboratory conducted by an efficient neuro-pathologist. The sad fact hitherto noted of the great increase of insanity among negroes demanded separate buildings for them. As is usual, they are supplied with colored nurses who are under the direction of white physicians and supervisors. There are now about three hundred and fifty negroes in the asylum. About one hundred negro men are colonized about two miles from the main buildings, and have shown the experiment to be a successful one. They are contented, are the healthiest class of patients under this management and by their farm labor contribute largely to the support of the institution.

MISSISSIPPI.

It was not until 1846 that Mississippi proposed to do anything for her insane people, and then the ideas of the legislature were exceedingly contracted. The bill for the establishment of a hospital consequently failed, but two years afterward was passed. The Governor suggested an appropriation of $3,000, thinking that would be sufficient, and the people of Jackson offered a lot of four acres. The legislature, however, had more liberal views, and appropriated $10,000, and as the lot of four acres was too small, another not far from the city was purchased. The $10,000 was soon expended, and then it was discovered that the work was defective and the expenditure lost. About this time that remarkable woman, Miss Dix, visited the state of Mississippi, and appeared before the legislature and secured an appropriation of $50,000. To this was added another $75,000. Then $30,000 more was found to be needed, and finally the $10,000 intended for the running expenses of the asylum was expended on these buildings. The buildings were at last ready, but there was no money for the main-

tenance of the patients. The trustees, however, came to the rescue, and giving the Governor sufficient bond to indemnify him in case the legislature refused to reimburse the treasurer, he consented to make the needful advance, and the asylum was opened for the reception of patients in 1855. From 1855 to 1878 there were six different superintendents. The first was Dr. W. S. Langley, who served for three years. He was succeeded by Dr. W. B. Williamson, who was superintendent one year only and was succeeded by Dr. Robert Kills, who remained in office about six years. Dr. A. B. Cabaniss who succeeded him was superintendent for three years, and was followed by Dr. W. B. Deason who remained in office twelve months. He was succeeded by Dr. W. B. Compton, who was superintendent for eight years. Dr. T. J. Mitchell, the present superintendent was elected in 1878.

The buildings are commodious, and there is room for over eight hundred and thirty patients, of whom nearly four hundred are colored people. During the year 1892 the center building was consumed by fire, but has since been rebuilt. The demand for accommodation having been too great for a single institution, another was established in Meridian, known as the East Mississippi Asylum. This institution was opened for the reception of patients in 1885. Dr. C. A. Rice was superintendent, and Dr. J. M. Buchanan, assistant superintendent. Dr. Rice retained his position for five years when he was succeeded by Dr. Buchanan, who is still in charge. The asylum had a capacity for two hundred and fifty originally, but has since been enlarged, and is now capable of accommodating three hundred patients. There are now in the asylum two hundred and eighty patients. The asylum is built of brick, three stories high, on the Kirkbride plan. It is heated by steam, and water is furnished by a deep well with a capacity of one hundred thousand gallons per day. The patients of the asylum are exclusively white. These two well equipped institutions meet the present demands of the State amply.

TENNESSEE.

As early as 1830 the attention of the general assembly

of Tennessee was called to the necessity of providing for the insane. An act was passed October 19, 1832, to erect a stone structure to cost $10,000. In 1836, $2,500 was appropriated by the legislature for completing and furnishing the institution, and again in 1838, $15,000 more was appropriated for its aid. The original site of this building was immediately in the vicinity of Nashville. It was of moderate capacity, and served as the State Lunatic Asylum until 1852. The first physician elected to take charge of the institution was Dr. John D. Kelly. The office of superintendent was filled by a layman, and upon this method the asylum was managed ten years. Dr. Kelly was succeeded by Dr. John S. McNairy, who remained in office many years. In the progress of time the old institution was found to be of faulty construction as regarded the health, comfort, and security of the patients. In 1845 an act was passed authorizing the sale of the old asylum and the purchase of a new one. During the legislative session of 1847-48, Miss Dix visited Nashville, and seeing the deplorable accommodations for the insane, made a strong appeal to the legislature. As a result of her efforts, in February, 1848, an act was passed establishing a hospital for the insane. In the same year, two hundred and fifty-five acres of land were purchased in one of the healthiest localities in Tennessee about seven miles from Nashville. The site being secured, Dr. John S. Young was appointed superintendent, and Major A. Heiman, architect. The plans finally chosen were based upon those of the Butler Hospital of Providence, R. I., which in turn were copied by Dr. Luther V. Bell from the asylum at Maidstone, England. The style of architecture is the castellated. The length of the building is three hundred and twenty feet front, east and west. The greatest breadth across the center is ninety-eight feet. The center building and the extremities of the east and west wings are four stories high. In March, 1852, Dr. W. A. Cheatham was made superintendent, and in the following month patients were removed from Nashville to the new institution. In 1855, two hundred acres were added to the asylum tract by purchase. In 1866, an asylum for the colored insane was

erected several hundred yards from the main building. In March, 1891, a fire destroyed the west wing of the main building, but this has since been rebuilt. There are now four hundred and eighteen patients in the asylum, of whom eighty-nine are colored—fifty-one females and thirty-eight males. Dr. Cheatham remained in charge until August, 1862, when he was arbitrarily removed from office by Andrew Johnson, the military governor of Tennessee, who appointed Dr. W. P. Jones superintendent. Dr. Jones remained in office until, injured by a blow on the head given him by a violent patient, he resigned and was succeeded by Dr. John H. Callender in 1869. Dr. Callender was continuously in office until 1894, when he resigned and established a private sanitarium in Nashville. Dr. John A. Beauchamp was his successor, and is still in charge of the institution.

EASTERN HOSPITAL FOR THE INSANE, KNOXVILLE.

In 1883, $75,000 was appropriated by the legislature to erect an asylum in East Tennessee on a tract of land near Knoxville, which had previously been secured for that purpose. Dr. Michael Campbell was appointed superintendent of construction. On the completion of the building he was elected medical superintendent, and is still in charge of the institution. The buildings have a capacity of from two hundred and fifty to three hundred patients, and cost with furniture, exclusive of land, between $200,000 and $300,000. The grounds include three hundred and five acres. The buildings are of brick in the Norman or castellated style of architecture, lighted by electricity, and heated by steam. The present number of patients is two hundred and eighty-two.

WESTERN HOSPITAL FOR THE INSANE, BOLIVAR.

In 1886 a commission to select a site for the Western Hospital was appointed by the legislature. The commissioners, J. M. Lea, Dr. J. H. Callender and Dr. William P. Jones, selected a tract of three hundred acres, between two and three miles from Bolivar. The State paid $5,000 and the citizens of the county donated $3,000 to secure the tract. Dr. J. B. Jones was selected as superintendent of construction, and on its completion was elected medical superintend-

ent. It was opened on December 24, 1889, for the reception of patients. The buildings cost $300,000 and have a capacity of from three hundred to three hundred and fifty patients. In 1895, $20,000 was appropriated for building an annex for negroes, providing for one hundred patients. The annex is now (1897) nearly completed. Dr. J. B. Jones died November 15, 1890. He was succeeded by Dr. John E. Douglas, the present superintendent. Although so recently established the institution has as many patients as it can well accommodate.

LOUISIANA.

For years as many as sixty insane patients were cared for in separate wards in the Charity Hospital at New Orleans. In the report of that hospital to the senate and house of representatives of Louisiana in 1845 it was strongly urged that provision be made for the insane then confined in the hospital. It was also recommended that the place chosen for the site of the proposed asylum be removed from the city where the "advantages derived from rural beauty and profound solitude can be obtained." Such appeals had their effect, and on March 5, 1847, the Governor approved an act to establish an insane asylum in the State of Louisiana. According to this act a board of five administrators was appointed to provide buildings and accommodations for the insane at Jackson. Not more than $10,000 per annum was allowed for the support of the institution. The asylum was ready for occupancy about the middle of November, 1848, when eighty-five patients were removed from the hospital in New Orleans to Jackson. In the first report of the board of administrators, dated January, 1848, we read: "The land on which the asylum is located is within convenient distance of the business part of the pretty village of Jackson, and at all times of easy access to the same; but separated from the noise and bustle of the village by a valley and small stream, which renders it sufficiently secluded to protect the patients from the annoying gaze of the idle and curious." There are about one hundred and fifty acres of land owned by the asylum, one hundred well timbered, and the balance enclosed for the use of the patients. The buildings of the

asylum consist of two wings, each ninety-four feet in length and forty-eight feet in depth, three stories high. A supplemental act was passed in March, 1848, appropriating $20,000 for the completion of the building then under contract. I learn from an early report that employment was recognized as a valuable means of treatment, though for its bearing upon legislation the economical side was dwelt upon.

Dr. Preston Pond was the first physician of the institution and James King its first superintendent. This arrangement was in accordance with the practice of the first stage of asylum evolution. The institution also received idiotic and feeble-minded youth and criminals, probably from the beginning. Up to 1858 there had been more than six hundred admissions. The average number of patients had been, for several years, over a hundred. In that year the annual appropriations of the legislature for the support of the institution were about $20,000, and there were in the asylum one hundred and twenty-four patients; of these, nine males and three females were pay patients. Among the state patients were eight free persons of color. Two-thirds, at least, of the patients were of foreign birth, principally Irish and German, and these were mostly brought from the city of New Orleans. Dr. J. D. Barkdull was superintendent in 1857. During the period of reconstruction, because of the injunctions upon the state treasurer against issuing the appropriations, it became necessary at times to raise funds upon the private security of the superintendent and others. At one period so great was the distress that the officers were tempted to throw open the gates and let the patients go forth to beg their daily bread. Dr. J. W. Jones was superintendent at the time, and it was mainly through his importunities that such a calamity was averted.

In 1879, owing to the inadequacy of accommodation for patients at Jackson, the city of New Orleans was compelled to make provision for its own insane. There were also many insane confined in the parish jails. Brick were made in part by the labor of patients, and the foundation of the extreme west wing was laid and almost completed by 1882. Dr. A. Gayden was superintendent from —— to 1897, when he was

succeeded by Dr. George A. B. Hays, who is now in charge.

MISSOURI.

The State of Missouri began her work for the insane at about the time in which so many Southern institutions were established. State Lunatic Asylum No. 1 was located at Fulton and opened for the admission of patients in 1851, under charge of Dr. Turner R. H. Smith, of Columbia, Mo., who remained in charge until 1861 when, owing to the disturbed condition of affairs, the asylum was closed for two years. In 1863 it was reopened, and Dr. Smith was again made superintendent, but resigned at the end of his term in 1865. Dr. Rufus Abbott, first assistant, temporarily succeeded until October 26, 1866, when Dr. Charles H. Hughes, of St. Louis, who had served for more than a year on the board of managers, was elected superintendent. He served the regular term of two years, and was re-elected for a second term of five years, but after serving three years he resigned, and traveled for a time to recuperate his shattered health. On his return he took up his residence in St. Louis, and began his professional life anew, founding the ALIENIST AND NEUROLOGIST in 1880, which he still edits, and engaging in the practice of neurological and psychological medicine. During Dr. Hughes' incumbency the institution was materially advanced in the direction of the needs of the modern hospital. Tramways were placed in the basement, a large gymnasium and bowling alley were built, improved cooking, heating and laundry apparatus were supplied, and post-mortems on the brain were conducted. He was a believer in therapy for melancholia, in music, labor, recreation, a liberal dietary, and in the law of kindness to all. He says, "The dietary of an insane hospital should not only be wholesome, but substantial and abounding in variety. The clothing of a patient materially influences the result of treatment, music and recreation play an important part, and patients are frequently curative of each other." In those atonic states of the nervous system accompanying melancholia and hysteria, he said, in 1870, "No tonic proves so speedily and certainly reconstructive of weakened nerve power as nux vomica, iron and opium, combined as circum-

stances may require, with aloin and proto-iodide of mercury." Beginning at page twenty-three of his report for 1868, his chapter on "Treatment" is fully up to date, and is somewhat in advance of the prevailing therapeutic skepticism of that time in our hospitals for the insane. He also in 1870 recommended separate provision and specially constructed hospitals for the epileptic insane, with rubber cushioned walls and floors, and without exposed heating coils.

Dr. Hughes was followed temporarily by Dr. John Howard, of Fulton, and he in 1872 by Dr. Smith, who remained in charge until his death in 1885. Dr. Smith was a Kentuckian by birth. He received his medical degree from Transylvania University. He removed from Kentucky to Missouri, and was engaged in the practice of medicine in Columbia when he was first invited to take the superintendency of the asylum. He was a man of fine presence, strong intellect, modest, firm and gentle; was conscientious and philanthropic, and in every way qualified for his responsible place. He was succeeded by Dr. W. R. Rhodes, and he by Dr. LeGrand Atwood, who was followed by Dr. R. S. Wilson. Dr. Warden, who succeeded Dr. Wilson, remained in charge until a few weeks ago when he was replaced by Dr. Coombs, a homœopathic physician.

During the month of April just passed, by an unprecedentedly autocratic edict of the Governor, this institution passed entirely into the hands of the homeopaths, members of the board being summarily removed for that purpose, the position of druggist being abolished, and the entire medical staff made up of young novices in psychiatry contrary to the statutes of the state which provide that the "Superintendent shall be a physician of knowledge, skill, and ability in his profession, and of special skill and experience with the insane."

The asylum buildings are located on a tract of land of five hundred and forty acres; are of brick, built on the Kirkbride plan and are commodious and attractive. The asylum is supplied with water from a well one thousand feet deep, and has all the equipment necessary to make its work effective. It now has six hundred and twenty patients.

The growing population of Missouri, and its wide extent of territory, led the legislature to provide for a third asylum, which was located in Southwestern Missouri at Nevada. It was opened for the reception of patients in 1887. It was well equipped from the beginning. Its buildings are comely and commodious, and admirably designed for the work the asylum has to do. The asylum has under its charge at this time five hundred and seventy-seven patients. It is maintained partly by the counties supporting the pauper patients, and partly by those who are able to pay. There is a large, productive farm connection. Dr. R. E. Young was its first superintendent, and he was succeeded by the present incumbent, Dr. J. F. Robinson, a graduate of the Missouri State University and of Jefferson Medical College. The institution seems to be well equipped and admirably managed.

ARKANSAS.

Up to 1883 the insane of Arkansas were confined in so-called poor-houses and jails. Then an institution for their relief was established, largely through the influence of Dr. P. O. Hooper, the present superintendent, who was president of the board of trustees. Dr. C. C. Forbes, who was superintendent of the hospital at Lakeland, Ky., was chosen superintendent, and held the position for over two years. Dr. Forbes having resigned, Dr. Hooper was placed in charge. New buildings were erected, and the asylum originally designed for two hundred and fifty was enlarged until six hundred patients were housed within its walls. After holding the office of superintendent for nine years Dr. Hooper resigned. He was succeeded by Dr. Robertson, who vacated the office after a three years' term, and Dr. Hooper was again placed in charge. The institution is located at Little Rock, and receives whites and negroes alike.

TEXAS.

An act creating the Texas State Lunatic Asylum was passed August 28, 1856. In May, 1857, Governor Pease appointed as superintendent of construction, Dr. J. C. Perry, who, however, remained in charge for one year only. The institution was located upon a slight elevation two and one-half miles north of Austin. The buildings were finished in

the winter of 1860, under the supervision of Dr. B. Graham, who was an appointee of Gen. Sam. Houston. The institution was organized and opened in March, 1861. A noble beginning was thus made, but its usefulness was destined to be hampered and checked for years, by war and its consequences. Dr. Graham was superseded early in the war, and from 1861 to 1869 nothing was done in the way of adding to or improving the buildings. In that time three or four different persons held the superintendency, and Dr. Graham in 1869 held his third commission. In that year the average number of patients was seventy, of whom three or four were colored. The law gave recent cases the preference over those of long standing. In 1871 there was a combined hostility by the state comptroller and state treasurer against the board of managers and superintendent. The credit of the institution was finally so impaired that there was danger of its being forced to turn patients out and abandon its work.

Dr. G. F. Weisselberg, the superintendent, in 1871, memorialized the legislature for means to build, saying, "A state that can expend millions of dollars for public purposes such as railroads, should be able to spend $60,000 to found a home for this most unfortunate class of humanity." The legislature did not respond to this appeal. During the first eighteen years one thousand one hundred and eighty-nine patients were admitted. From the close of the war there were incessant but ineffective demands upon the legislature for the means to provide more accommodation. In 1879 Dr. W. E. Saunders, then superintendent, asked for $50,000 to complete the west wing according to the original plan. He was given $11,000 for improvements, and out of this sum it was expected that the additional number of patients would be supported. The institution is badly crowded, and from the report of the superintendent it appears that more than half of the applicants for admission during the past year were rejected for want of room. The present legislature is making provision for a badly needed addition to the asylum. There are now five hundred and ninety-one white and one hundred and nine colored patients. The institution is sup-

plied with electric lights and an abundance of water, by contract. There is a large farm and garden connected with the asylum.

In 1883 an asylum was located at Terrell, in North Texas, and placed under the charge of Dr. D. R. Wallace. Dr. Wallace has had more experience, and perhaps has done more for the care of the insane, and served longer as superintendent, than any other man in Texas, his term of office being about thirteen years. The institution has a capacity of eight hundred and fifty patients, is well equipped in every way, and has been pronounced, says Dr. Wallace, an institution of typical excellence. Dr. Gaillard is at present in charge.

The Southwestern Hospital for the Insane was located at San Antonio and opened for the reception of patients April, 1892. It has six hundred and forty acres of land beautifully located on the banks of the San Antonio river. During the last session of the legislature $170,000 was appropriated for new buildings to accommodate three hundred white and two hundred colored patients, and also an infirmary. It has an abundant supply of water from the river. The number of patients in the asylum at the close of the last fiscal year was two hundred and seventy-one. Dr. W. L. Barker was superintendent for the first three years of the asylum's existence. Dr. Worsham followed him for one year, and now Dr. McGregor is in charge.

FLORIDA.

The insane of Florida were cared for in the asylums of other states—Georgia, South Carolina and Alabama, at the expense of Florida until 1877. Georgia had received the larger number of the patients, but the legislature of that state having ordered the return of the patients not resident citizens on account of the crowded condition of the Georgia asylum, Florida decided to establish an institution of its own. An old fortress with its barracks was chosen. It was located in the western part of the state near the Chattahoochie river, in the village of Chattahoochie. It had a capacity of two hundred and fifty patients, and has since been enlarged until it can provide for seven hundred and

fifty. There are at present within its walls three hundred and eighty-four patients. The asylum has had in the twenty years of its existence eight superintendents, and is now in charge of J. W. Trammell, layman, as superintendent, and Dr. L. D. Blocker, physician.

ADDENDUM NO. 1.

The ordeal that asylums passed through during the late war and the period of reconstruction can now be but faintly realized. The demand for soldiers called every able-bodied man to the front, which made serviceable male attendants hard to secure. Clothing was scarce, and worse than all, the food supply was so reduced that often real want stared the hospitals in the face; but through the wondrous providence of God, and the untiring efforts of the self-sacrificing officers, the patients were fed, clothed and sheltered. Upon the close of the war the overthrow of State governments added to the disorder. Another danger menaced the asylums in some of the Southern States, in that political interference appeared and proved hurtful to the institutions. It is but due, however, to some State governments during the reconstruction days, to say that they had hearts to sympathize with this afflicted class, and recognized the fact that politics should not interfere with the administration of hospitals for the insane. But the times were hard, State credit was low, and everything was uncertain. The administrative officers lived anxious and laborious days; but they stood bravely to their posts, and did what they could for the care and welfare of their respective charges, and at last came safely out of the storm. We cannot over-estimate the credit due those noble humane men for their inflexible fidelity to their trust during the time of the turmoil. I have no knowledge of any hospital for the insane, save one, being closed either during the war or the reconstruction period.

ADDENDUM NO. 2.

In one particular alone does lunacy administration at the South differ from the same problem elsewhere in our country. What the race problem is to our whole section, so is the question of the colored insane to our specialty. Provision for this class has always been a separate and peculiar problem. Before the war there were, comparatively speaking, few insane negroes. Following their sudden emancipation the number began to multiply, and, as accumulating statistics show, is now alarmingly large and on the increase. This is not the place to enter into an inquiry as to the etiology but only to recognize the fact, and show how earnestly State administrations are striving to meet it.

We have been confronted with the question of providing for a class emerging from servitude, of different race, habits, instincts, and training. The alien pauper insane of the great centers of population, North and West, may in a measure represent our insane negroes, the burden of whose sup-

port has fallen upon their former owners, themselves struggling to rise from the impoverishment of war.

Those authorities who have given not only most thought to the subject, but who have also dealt with it practically in our asylums, have been unanimous in the opinion, that the separation of white and colored patients is to the advantage of both races. The distinction has been made for social reasons alone. Consequently we find to-day in most Southern asylums four departments, whereas in other institutions two suffice. Virginia and North Carolina have entirely separate hospitals in the center of the negro population near the Atlantic seaboard. This policy has not been deemed advisable in other states, partly for economical reasons, but largely because the negro population is more uniformly distributed.

Even the existence of insanity in negro slaves has been questioned. But insanity was common enough to require special provision for the care of insane slaves by the provincial council of South Carolina in 1745, and the pressing need of means for their accommodation is shown by the early records of our asylums as they were successively established before 1860.

Prior to the civil war in the asylums of Virginia, Kentucky, South Carolina, Maryland, Louisiana and the District of Columbia, colored insane were received as patients. In those days the accommodations for negroes were probably not adequate, but a generation ago our predecessors began the work, which we of a later day have in some states been able to carry to the consummation so devoutly to be wished. Among the pioneers in caring for insane negroes may be mentioned Stribbling and Galt of Virginia, Chipley of Kentucky, Trezevant and Parker of South Carolina, Steuart of Maryland, and Nichols of the District of Columbia.

Following their emancipation the negroes have become subject to the same penalties that other races have paid for liberty, license and intemperance. Among those penalties insanity is not the least. A recent estimate based upon the records at the census office shows that brain disease in the negro, as compared with the white, has increased from one-fifth as common in 1850 and 1860, to one-third as common in 1870, and one-half as common in 1880 and 1890. Or, stated in another way, the ratio of insanity per million among the negroes has risen from one hundred and sixty-nine in 1860, to eight hundred and eighty-six in 1890.

Until a recent period, the Southern negro was in a great measure exempt from both insanity aud tuberculosis. To-day, associated with insanity, we find tuberculosis alarmingly prevalent among our colored patients, especially females. As a race their mortality is greater than among the whites. Medication is of little effect. The tendency of the disease is towards a rapid and fatal decline. If we cannot cure, possibly we may prevent. To this end isolation of tuberculous cases is the most rational method at our command.

THE NEUROTIC SALVAGE OF SUICIDE.

A SEQUEL TO "SUICIDE" IN OCTOBER (1897) NUMBER OF THE ALIENIST AND NEUROLOGIST.

By C. H. HUGHES, M.D., St. Louis.

MY article on suicide, so cruelly and caustically criticised by some medical and more clerical critics, is a scientific view in a scientific medical journal, of the effects of self-destruction on the welfare of mankind; the physiological salvage of the brain and nervous system of man, not on the moral aspect of the subject, showing that, like war, it is not all and always evil in its results upon the world; and, like murder, sometimes salutary, if not in general commendable.

It is not an advocacy of suicide, but shows that, in view of what woes of nerve and mind degeneracy and wrongs from the depravity of degenerate criminals the world escapes through the timely self-inflicted death of the many moral and mental degenerates who commit self-destruction, it is often a blessing to the world even though it may be criminal in the individual who commits it, and painful and pitiful and sinful in special instances. Many a wrong works out for good in the world, as when two worthless people engage in a duel and each kills the other.

The progress of Neurological science reveals to us how suicide has proven to the world, from a neuriatric standpoint, to have been a blessing in disguise in numberless instances by saving the world from a prospective progeny of insanity, imbecility and woes of mind and brain innumerable which spring from the loins of certain degenerates. Take, for instance, the Jukes family of Massachusetts, over seven hundred

in number, every one in some way defective and degenerate charges upon the state, as paupers, criminals, insane or idiotic, all estimated to have cost in the aggregate over four millions of dollars for their keeping. The state did not turn these defectives loose but kept them (too late however) from the harm of procreation. Suppose the elder Jukes' had committed *felo de se*, would not their suicide have been a blessing?

The more of the criminal and crank class who take themselves away from the world they only menace and damage with moral and physical evil, the better it appears for society. This is the fact as I view it, but I am not an adviser of suicide. The state takes a life for a life, the law justifies and the courts approve. Suppose the criminal homicide under just remorse, does the same, shall we condemn the just self-punishment? Is *Hari Kari* only justifiable in China?

As usual on scientific matters, my ministerial friends go off half-cocked and see only the moral aspects of the case. Dr. Snyder, especially, and evidently without reading the whole article, pitched into me from the wrong aspect, and depicted a horrible state of affairs, because I see that the class of people who ordinarily commit suicide are not so much to be pitied as commended for the benefits they have conferred on mankind by not insisting on cumbering the earth with a nerve degenerate progeny; not all of them, to be sure, but many of them, enough to show that humanity has really been benefitted by their going.

The shots of my clerical friends are about as true as those of a Saint Louis policeman, lately so graphically depicted in one of our Sunday papers—wide of the mark.

When we may justly say of a man "he ought to be killed," and would wish to see him killed; if he should kill himself, why should we condemn him? Specifically I do not know when suicide in a particular individual is justifiable. That is a moral question I do not attempt to decide, because I do not know all of any single life, but I do know that suicides who individually may have committed sin in the sight of God, because the command from Sinai is, "thou shalt not kill," have served their race

better by dying than they would have done had they lived. Yet law, Divine and human, ordains that bad men shall be executed and Nature cuts off the unfit to live by premature death, by diseases, the results of vices, by casualties, the results of crime, and by suicide.

Good to the race comes from death, as well as life, death, self-inflicted, as well as from other causes. The individual moral aspects of the question do not come under consideration. It is not a matter of advocacy of morals that is before us, but of observation. It may be wrong for one to kill himself, it generally is wrong so to do, yet the act may prove a righteous and good deed for mankind.

A man who shoots himself in anticipation of a resistless impulse to kill his wife and child, does a better thing than to destroy his wife and child and then shoot himself.

Under his pleading I once performed a perilous operation on a patient who had epileptic homicidal insanity from a head wound. In his sane moments, the man said with a painful shudder, "I would rather die now than risk a repetition of the last attempt I made to kill my wife and child; I want to see them, but I dare not." Had this man been out of reach of surgical help, would his suicide have been a crime? Psychological science and a sound theology which is ever based on truth would answer, no. While the smaller calibered theologians would say, yes; because the decalogue says, "Thou shalt not 'kill.'" But it also says, "thou shalt not steal;" yet who would not do both in defense of his life or of the lives of loved ones dependent on him. "Self-preservation is the first law of nature."

There is presented a handsome enough array of theological and medical critics to adorn a logical shooting gallery, but their shots, as I say, are all wide of the mark. I do not advocate suicide. I would not myself attempt it. Never thought of it in my life as a personal remedy, but there are many circumstances under which men apparently ought to die, either by their own or other hands, and the world would be better for their departure. Such circumstances have been, are now, and are yet to come.

It is less an evil for some men to die than to live and

what matters it to the world whether they take themselves away from the earth they encumber or are removed? The world is bettered by their going. The moral question is with themselves, their consciences and their God.

Suicide is not the remedy that I approve for most of the evils which suicide averts from the race. There are others—asexualization, for instance, and those the state employs, incarceration, reformation and execution. But the fact exists that suicide, horrible and shocking to our sensibilities as suicide is, has not proved so harmful to the race, because it has more largely pruned out the unfit to live and propogate their unfit and fateful kind.

"To take up arms against a sea of troubles" in faith and heroism, facing every adversity, as did Job of Bible story, finally triumphing without retreat in suicide, is the brave, manly and commendable part, while to seek cowardly refuge in self-destruction from the ordinary ills of life, is despicable.

Personally, to the individual I should say, never despair;

> What though skies are darkened now,
> And storms adverse draw nigh:
> Hold bravely up, do not despair,
> The darkest clouds pass by,

to those who persistently fight on, battling manfully and ever hoping, ever trusting, ever fighting on and never saying die. Nevertheless many despair and destroy themselves because of the weakness of their organisms: some, weakened by vices that would give to their posterity a greater weakness of organism, react more painfully to their environments. When such destroy themselves and when the criminally and viciously endowed do likewise, the world profits in having no race of weaklings left after them to repeat their sad experience. By the timely suicide of such persons race degeneracy in their line is arrested and race decadence postponed in the cutting off of the individual. Among the viciously dowered criminal class there are millions in the world who had better not have been born so far as we can judge from the teachings of hereditary criminology. Regarding them we discuss a mental condition based on vicious organic endowment, not a sentimental theory. Of

the demise of such we might sing as sang the untutored miners over the bier of their dead "pardner,"

"With rapture we delight to see
"The cuss removed."

A slight variation in the words from what the saintly Watts intended, but physiologically true, when we divest the subject of suiciding criminals of all sentiment and view it in the clear light of scientific truth.

While it is individual cruelty to favor taking the life of the criminally or the insanely endowed and heartless to gloat over their suicide, it is nevertheless as good for the race that they go away as it would have been had they never been born. Gentlemen of the Clergy and critics of my own cloth, this is the sum of my offending. The evil or good effect of suicide is not of our making. It grows out of the laws of nature, reproduction and hereditary transmission.

I do not advocate suicide as a remedy, but I say the weaklings, mental and moral, the criminal and the vicious, who commit suicide do often unawares and without intending, pay a debt to nature and confer a benefit on mankind. The world is better for their taking off, for it is cumbered with one less at least and possibly many more of their kind. We approve the warrior's sacrifice of life for his country, enshrine his brow in laurel and engrave his patriotism on bronze and marble; why not approve the suicide who dies that none of his kind may come after him, if he be greatly degenerate, mentally or morally? The good grain grows best when the tares are taken from the field.

"Is suicide a Sin" is not my theme in the crookedly criticised essay in the October ALIENIST. Suicide in the individual is very often a sin, dastardly, viciously, vengefully or insanely designed, a cowardly retreat under fire in the battle of life, a wrong to one's dependencies and a mistaken or wicked escape from difficulties, a desperate, despairing and devilish substitute for manly resolution, reformation or courage. Yet the timely suicide of the moral imbeciles and mental defectives who commit it, has proved a blessing to a world they have often so ignominiously and

selfishly left. For the "one more unfortunate" the world has often been saved a progeny of woe burdened creatures like themselves. The very thought of suicide is often an unhealthy thought and from my standpoint of life and duty ought never to be entertained, yet that does not alter the fact that the average weak and foolish suicide who takes himself out of the way and gives place to a better man or woman with the hope of a more stable and courageous progeny to stand more nobly in line of life's battles without thought of desertion or retreat, confers a benefit on the earnest, duty-doing working world, whose "sea of troubles" he "takes up arms against" by the craven coward's weapon of self-destruction. So that one may see individual evil in self-slaughter and yet discern the general good that comes of it. The race marches on to its destiny less encumbered because of those degenerates and cowards and otherwise unfit to survive who thus take themselves out of the ranks of life's conflict.

ADDENDUM.

It would not be difficult for the student of psychopathic and neuriatric heredity to select from the following cases abstracted from the work of Sollier, together with those recorded on p. 216, *et seq.*, vol. xviii of the ALIENIST AND NEUROLOGIST, several hundred instances where timely suicide or death in other forms might have saved the world much neuropathic misery and the race great psychopathetic harm from which good alienists and neurologists devoutly pray that mankind may be delivered.

1. Terr—, 6 years, symptomatic idiocy. *Father* alcoholic.
2. Nesling—, 6 years, complete idiocy. Two *maternal uncles*, alcoholics.
3. Langl—, 12 years, idiopathic epilepsy. *Brother* alcoholic.
4. Mo—, 9 years, symptomatic idiocy, epilepsy. *Father* alcoholic.
5. Miel—, 16 years, idiopathic epilepsy. *Father* alcoholic.
6. (Same subject), *Mother* alcoholic.
7. Mesni—, 15 years, alcoholic, idiopathic epilepsy. *Sister* alcoholic.
8. Pij—, 13 years, epileptic idiot. *Father* alcoholic.
9. Richoll—, 20 years, epileptic. *Paternal uncle*, alcoholic.
10. Jean—, 13 years, complete idiot. *Father* alcoholic.

11. Sol—, 4 years, idiot. *Father* alcoholic.
12. Joussel—, 12 years, imbecility. *Father* alcoholic.
13. Lebr—, 11 years, epilepsy, mental debility. *Father* alcoholic.
14. Luc—, 12 years, epilepsy, mental debility. *Father* alcoholic.
15. Gra—, 16 years, pachydermic cachexia. *Father* alcoholic.
16. Mig—, 13 years, epilepsy, right hemiplegia. *Father* alcoholic.
17. Jui—, 9 years, imbecility, instability. *Father* alcoholic.
18. Lorr—, 5 years, complete idiot. *Paternal grandfather* alcoholic.
19. Lelon—, 8 years, epilepsy, imbecility. *Father* alcoholic.
20. Rivan—, 15 years, imbecility, infantile hemiplegy. *Father* alcoholic.
21. Chatil—, 16 years, imbecility. *Father* alcoholic.
22. Moquer—, 11 years, complete idiocy. *Father* alcoholic.
23. Gouri—, 13 years, imbecility and perverted instincts. *Father* alcoholic.
24. Rem—, 10 years, instability and perverted instincts. *Father* alcoholic.
25. Rolin—, 13 years, imbecility. Alcoholic *mother*.
26. Simonn—, 17 years, epileptic. Alcoholic *mother*.
27. Waecht—, 14 years, complete idiot. *Father* alcoholic.
28. Gros—, 30 years, epilepsy, idiocy. *Father* alcoholic.
29. Jourd—, 47 years, alcoholic aud epileptic.
30. Lepell—, 16 years, idiopathic epilepsy and imbecility. *Father* alcoholic.
31. Legan—, 45 years, alcoholic, late epilepsy.
32. Mor—, 14 years, complete idiot. *Paternal uncle* alcoholic.
33. Sirconl—, 41 years, alcoholic and epileptic.
34. Cann—, 20 years, idiopathic epilepsy. Alcoholic *mother*.
35. Schad—, 15 years, idiopathic epilepsy.
36. Ender—, 5 years, alcoholic imbecile.
37. Blanch—, 3 years, complete idiot. *Father* alcoholic.
38. Boissi—, 3 years, complete idiot. *Father* alcoholic.
39. Crepi—, 14 years, symptomatic idiocy. *Father* alcoholic.
40. Caba—, 6 years, imbecility and right hemiplegia. *Father* alcoholic.
41. Cont—, 8 years, complete idiot. *Father* alcoholic.
42. Dufo—, 8 years, complete idiocy and epilepsy. Alcoholic *father*.
43. Duv—, 15 years, imbecility, goitre. *Father* alcoholic.
44. Dupu—, 7 years, half idiot. *Father* alcoholic.
45. Hans—, 8 years, complete idiot. *Father* alcoholic.
46. Rossi—, 14 years, complete idiot. *Father* alcoholic.
47. Detr—, 28 years, epilepsy and dementia. *Brother* alcoholic.
48. Maill—, 28 years, idiopathic epilepsy. *Father* alcoholic.
49. Rec—, 13 years, idiocy and epilepsy. *Father* alcoholic.
50. Debar—, 30 years, alcoholic and epileptic.
51. Dorl—, 41 years, alcoholic and epileptic.
52. Gach—, 17 years, alcoholic and epileptic.
53. Cart—, 15 years, mental instability. *Father* alcoholic.
54. Monat—, 4 years, epilepsy and complete idiocy. *Father* alcoholic.

55. Pig—, 7 years, imbecility. Alcoholic *mother.*

56. Laumail—, 7 years, imbecility, epilepsy. *Maternal grandfather* alcoholic.

57. Jon—, 5 years, complete idiocy. *Maternal grandfather* alcoholic.

58. Spor—, 14 years, imbecility. *Maternal grandfather* alcoholic.

59. Bril—, 13 years, hereditary epilepsy. *Maternal grandfather* alcoholic.

60. Montag—, 15 years, congenital imbecility. *Paternal grandfather* alcoholic.

61. Mur—, 15 yeárs, epilepsy and imbecility. *Maternal grandfather* alcoholic.

62. Bign—, 4 years, complete idiocy. *Paternal grandfather* alcoholic.

63. (Same subject). *Maternal grandfather* alcoholic.

64. Cont—, 8 years, idiotic. *Maternal grandfather* alcoholic.

65. Adel—, 10 years, completely idiotic. *Maternal grandfather* alcoholic.

66. Bland—, 14 years, idiopathic epilepsy and imbecility. *Father* alcoholic.

67. Bennet—, 14 years, imbecility. *Paternal grandfather* alcoholic.

68. Card—, 12 years, imbecility and perverted instincts. *Paternal grandfather* alcoholic.

69. Chreti—, 5 years, instability and imbecility. *Paternal grandfather* alcoholic.

70. Dufourm—, 10 years, imbecility. *Maternal grandfather* alcoholic.

71. Echas—, 14 years, imbecility and cerebral atrophy. *Paternal great grandfather* alcoholic.

72. (Same subject). *Maternal grandmother* alcoholic.

73. Saint-Arn—, 6 years, completely idiotic. *Maternal great grandfather* alcoholic.

74. Trep—, 15 months, idiotic hydrocephalus. *Paternal grandfather* alcoholic.

75. Bond—, 13 years, idiopathic epilepsy. *Paternal grandmother* alcoholic.

76. Maisonh—, 14 years, epilepsy, hemiplegy. *Maternal grandfather* alcoholic,

77. Dam—, 10 years, epilepsy, hemiplegy and imbecility. *Maternal grandfather* alcoholic.

78. Duché—, 18 years, chronic epilepsy. *Maternal grandfather* alcoholic.

79. Tall—, 10 years, completely idiotic. *Maternal grandfather* alcoholic.

80. Chop—, 15 years, idiopathic epilepsy. *Maternal grandfather* alcoholic.

81. Bérang—, 16 years, complete congenital idiocy. *Paternal grandfather* alcoholic.

82. Moncont—, 7 years, epileptic symptoms, idiotic. *Maternal grandfather* alcoholic.

83. Breg—, 17 years, epilepsy. *Maternal grandfather* alcoholic.

84. Lou—, 13 years, idiopathic epilepsy. *Paternal grandfather* alcoholic and a suicide.

85. Ducon—, 11 years, completely idiotic. *Maternal grandfather* alcoholic.

86. Gene—, 7 years, completely idiot. *Maternal grandfather* alcoholic.

87. Brunch—, 9 years, idiopathic and epileptic. *Paternal grandfather* alcoholic.

88. Palad—, 39 years, idiopathic epilepsy. *Maternal grandfather* alcoholic.

89. Bau—, 9 years, idiotic. *Maternal grandfather* alcoholic.

90. Guit—, 7 years, idiotic. *Maternal great grandfather* alcoholic.

91. (Same subject). *Paternal grandmother* alcoholic.

92. Vath—, 7 years, completely idiotic. *Maternal grandfather* alcoholic.

93. Pige—, 4 years, complete idiot. *Paternal grandfather* alcoholic.

94. Ranv—, 10 years, imbecility. *Paternal grandfather* alcoholic.

95. Ren—, 5 years, complete idiot. *Paternal grandfather* alcoholic.

96. Farg—, 13 years, cerebral atrophy, athetosis and debility. *Maternal grandfather* alcoholic.

97. Gir—, 7 years, completely idiotic. *Paternal grandfather* alcoholic.

98. (Same subject). *Maternal grandfather* alcoholic.

99. Guit—, 7 years, idiotic. *Eather* alcoholic. Foundling.

100. Gren—, 9 years, complete idiocy. *Maternal grandfather* alcoholic.

101. Larei—, 11 years, marked imbecility. *Paternal grandfather* alcoholic.

102. Mett—, 16 years, imbecility, epilepsy. *Paternal grandfather* alcoholic.

103. Mor—, 16 years, mental debility and chorea. *Father* alcoholic.

104. Math—, 10 years, symptomatic epilepsy. *Maternal grandfather.*

105. (Same subject). *Father* alcoholic.

106. Mavr—, 7 years, imbecility and epilepsy. *Paternal grandfather* alcoholic.

107. Mitt— 10 yrs., epilepsy and mental debility. *Father* alcoholic.

108. Rolin— 13 yrs., imbecility and epileptic vertigo. *Maternal grandfather* atcoholic.

109. Lefevr— 9 yrs., idiotic. *Maternal grandfather* and *grandmother* alcoholic.

110. Pinc— 14 yrs., mental debility. *Paternal grandfather* alcoholic.

111. Reul— 11 yrs., epilepsy and mental debility. *Paternal grandfather* alcoholic.

112. Neclai— 13 yrs., idiocy and symptomatic epilepsy. *Father* alcoholic.

113. Nerri— 12 yrs., epilepsy. *Paternal grandfather* alcoholic.

114. Verl— 14 yrs., epilepsy. *Maternal grandfather* alcoholic.

115. Wiln—14 yrs., infantile cerebral hemiplegy. *Maternal grandfather* alcoholic.

116. Gran— 9 yrs., imbecility. *Father* alcoholic.

117. Laril— 16 yrs., epileptic hysteria. *Maternal grandfather* alcoholic.

118. Jan— 7 yrs., complete idiocy, microcepalous. *Father* alcoholic.
119. Mor— 16 yrs., epileptic. *Father* alcoholic.
120. Terr— 5 yrs., complete idiocy. *Maternal grandfather* alcoholic.
121. Brugn— 11 yrs., idiopathic epilepsy. *Paternal grandfather* alcoholic.
122. Bonj— 16 yrs., epileptic. *Father* alcoholic.
123. Corb— 16 yrs., backward, perverted instincts. *Father* alcoholic.
124. Crep— 10 yrs., idiopathic epilepsy. *Maternal grandfather* alcoholic.
125. Berg— 16 yrs., epileptic. *Maternal grandfather* alcoholic.
126. Misb— 6 yrs., complete idiot. *Maternal grandfather* and *grandmother* alcoholic.
127. Dav.— 7 yrs., mental instability and imbecility. *Paternal grandfather* and *great-uncle* alcoholic.
128. Gard— 17 yrs., epilepsy. *Father* alcoholic.
129. Hach— 17 yrs., epilepsy and imbecility. *Maternal grandfather* alcoholic.
130. Hel— 18 yrs., epilepsy, and hemiplegy. *Maternal grandfather* alcoholic.
131. Laud— 13 yrs., imbecility. *Paternal grandfather* alcoholic.
132. Mico— 10 yrs., symptomatic epilepsy. *Paternal great-grandfather* alcoholic.
133. (Same subject). *Maternal great-grandfather* alcoholic.
134. Mich— 16 yrs., epilepsy. *Maternal grandfather* alcoholic.
135. Munhov— 16 yrs., half epileptic. *Paternal grandfather* alcoholic.
136. Mor— 5 yrs., completely idiotic. *Paternal grandfather* alcoholic.
137. Brissel— Imbecility and cerebral hemiplegy. *Maternal grandfather* alcoholic.
138. Horn— 11 yrs., complete idiot. *Maternal grandmother* alcoholic.
139. Piqu— 16 years, imbecility, foolish childishness. *Paternal grandfather* alcoholic.
140. Richall— 20 yrs., epileptic. *Maternal grandfather* alcoholic.
141. Vallert— 20 yrs., chronic epilepsy. *Paternal grandfather* alcoholic.
142. Gauth— 9 yrs., complete idiot. *Maternal great-grandfather* alcoholic.
143. Peroch— 47 yrs., late epilepsy. *Father* alcoholic.
144. Bio— 9 yrs., symptomatic epilepsy. *Maternal great-grandfather* alcoholic.
145. Mond— 5 yrs., idiotic. *Paternal grandfather* alcoholic.
146. (Same subject). *Maternal grandfather* alcoholic.
147. Eng.— 3 yrs., symptomatic idiocy. *Paternal grandfather* alcoholic.
148. Bertram— 15 yrs., alcoholic epilepsy.
149. Bill— 32 yrs., epilepsy. *Father* alcoholic.
150. Charpeut— 10 yrs., idiotic. *Maternal grandfather* alcoholic.
151. Duv— 8 yrs., epilepsy, idiotic. *Maternal grandfather* alcoholic.

152. Par— 9 yrs., epilepsy, idiotic. *Maternal grandfather* alcoholic.

153. Lecl— 24 yrs., epilepsy. *Father* alcoholic.

154. Lem— 15 yrs., epilepsy, imbecility. *Paternal uncle* alcoholic.

155. Mor— 3 yrs., convulsions, idiotic. *Father* alcoholic.

156. Mora— 3 yrs., idiotic, epilepsy. *Paternal grandfather* alcoholic.

157. Nial— 17 yrs., idiotic, *Paternal grandfather* alcoholic.

158. Ygon— 18 yrs., mental instability. *Paternal grandfather* alcoholic.

159. Blanc— 18 yrs., epilepsy, infantile hemiplegy. *Paternal grandfather* alcoholic.

160. Cheder— 33 yrs., idiopathic epilepsy. *Father* alcoholic.

161. Bar— 18 yrs., mental debility. *Maternal grandfather* alcoholic.

162. Grégoi— 20 yrs., epilepsy. *Maternal grandfather* alcoholic.

163. Georg— 16 yrs., epilepsy. *Maternal grandfather* and *granduncle* alcoholic.

164. Joli— 31 yrs., epilepsy. *Maternal grandfather* alcoholic.

165. Mor— 46 yrs., Partial epilepsy. *Maternal grandfather.*

166. Mall— 35 yrs., epilepsy. *Maternal grandfather* alcoholic.

167. Lebe— 11 yrs., epilepsy and loss of intellect. *Maternal grandfather* alcoholic.

168. Gantr— 12 yrs., microcephalous. *Maternal grandfather* alcoholic.

169. Meel— 7 yrs., epilepsy and loss of intellect. *Paternal grandfather* alcoholic.

170. (Same subject). *Maternal grandfather* alcoholic.

171. Klei— 9 yrs., epilepsy. *Paternal grandfather* alcoholic.

172. Bress— 9 yrs., idiotic. *Paternal grandfather* alcoholic.

173. Rich— 12 yrs., idiotic. *Maternal great grandfather* alcoholic.

174. Rosenmay— 10 yrs., epileptic. *Paternal grandfather* alcoholic.

175. Espinas— idiotic, epilepsy. *Maternal grandfather* alcoholic.

176. Herg— 7 yrs., epilepsy, idiotic. *Paternal grandfather* alcoholic.

177. Lemail— 8 yrs., epilepsy. *Maternal grandfather* alcoholic.

178. Mall— 4 yrs., idiotic. *Paternal grandfather* alcoholic.

179. Pill— 8 yrs., epilepsy and idiotic, *Maternal grandfather* alcoholic.

180. Semai— 7 yrs., imbecility, right hemiplegia. *Maternal grandfather* alcoholic.

181. Corb— 7 yrs., idiotic. *Maternal great grandfather* alcoholic.

182. Taber— 6 yrs., epilepsy. *Maternal grandfather* alcoholic.

183. Dum— 7 yrs., imbecility. *Maternal grandfather* alcoholic.

184. Darte— 12 yrs., *Maternal grandfather* alcoholic.

185. Duv— 15 yrs., imbecility, goitre. *Maternal great aunt* alcoholic.

186. Lucr— 11 yrs., idiotic, epilepsy. *Maternal grandfather* alcoholic.

187. Richa— 15 yrs,, epilepsy and imbecility. *Father* alcoholic. Foundling.

188 Sin— 7 yrs., idiotic, epilepsy and blind. *Father* alcoholic. Foundling.

189. Wath— 7 yrs., complete idiot. *Paternal grandmother* alcoholic.

190. (Same subject). *Maternal grandmother* alcoholic.

191. Tourn— 5 yrs,, idiopathic epilepsy. *Father* alcohoiic.

192. Arp— 17 yrs., idiopathic epilepsy. *Maternal grandfather* and *grand-uncle* alcoholic.

193. Ger— 15 yrs., idiopathic epilepsy. *Maternal grandfather* alcoholic.

194. Bru— 17 yrs., epilepsy, imbecility and strabismus. *Father* alcoholic. Foundling.

195. Boutr— 8 yrs., mental debility and epilepsy. *Maternal grandfather* alcoholic.

196. Rauv— 11 yrs,, imbecility. *Paternal grandfather* alcoholic.

197. (Same subjcct). *Maternal grandfather* alcoholic.

198. Guin— 5 yrs., marked imbecility. *Paternal grandfather* alcoholic.

199. Bout— 15 yrs., idiopathic epilepsy. *Maternal grandfather* alcoholic.

200. Dubu— 13 yrs., epilepsy. *Maternal grandfather* alcoholic.

201. Guerr— 36 yrs., epilepsy. *Father* alcoholic. Bastard.

202. Carl— 15 yrs., mental instability. *Maternal grandfather* alcoholic.

203. Monat— 4 yrs., complete idiocy, epilepsy. *Maternal grandfather* alcoholic.

204. Al— 17 yrs., mental instability. *Maternal grandfather* alcoholicr

205. Sauln— 9 yrs., imbecility and strabismus. *Maternal grandfathe.* alcoholic.

206. Charret— 3 yrs., complete idiot. *Maternal grandfather* alcoholic.

207. Mitt— 10 yrs., imbecility and epilepsy. *Father* and *three uncles* alcoholic.

208. Weiss— 7 yrs., wholly idiotic. *Father* alcoholic.

209. Demitt— 16 yrs., idiopathic epilepsy. *Father* and *three uncles* alcoholic.

NOTE. To such as may regard this and any preceding paper as too radical, I may quote as a germane matter of reference from "Some Points on Lunacy Practice, etc.," by J. E. Shaw, M. B., Ed., in the *Bristol Medico-Chirurgical Journal* of December, 1897, the same being an abstract of the presidential address before the Bristol Medico-Chirurgical Society. "A recent issue of the *Journal of the American Medical Association* has a long argument in support of its proposition to kill all idiots. Urquhart at Montreal said that in Scotland in former days all male epileptics were castrated, in order to prevent the propagation of the heredity; Sir J. Crichton Browne quotes the advice of the New York Medico-Legal Society to the effect that suicide should be recommended to those more or less insane."

Cerebral Syphilis with Wide Spread Involvment of the Cranial Nerves.

By GEORGE J. PRESTON, M. D.

Professor of Nervous Diseases, College of Physicians and Surgeons, Baltimore.

IN considering the diagnostic symptoms of cerebral syphilis great weight should be attached to the fact that the lesion is frequently very widespread and that multiple lesions are common. The size of the gummatous masses in the pia for example may be large or small, and the leptomeningitis may be confined to a comparatively limited area at the base of the brain or may involve a greater part of both basal and vertical meninges. In addition to the affection of the meninges, syphilis may involve the brain either as a gumma of the brain substance with symptoms of tumor, as circumscribed or diffuse syphilitic encephalitis or as cerebral sclerosis. More important and far more common is syphilitic arteritis which plays such a very prominent part in the production of hemorrhage, thrombosis and embolism. The following case is interesting in that it shows how manifold may be the symptoms of syphilis of the brain. The patient E. W. colored, aged 37, presented himself recently at the clinic for Nervous Diseases of the City Hospital. His family and early personal history is unimportant except that he was, as he expressed it, "scrofulous" as a child. Ten years ago he had a chancre followed by distinct secondary manifestations. He was treated thoroughly according to his statement, and continued in perfect health until about three years ago. Sometime, probably in '65, he was suddenly taken sick, the chief symptom being very severe pain in his head. He was

confined to bed for a month and attended by a physician. This attack left him with some suppurative disease of his left eye which gradually destroyed the sight and the eye was enucleated about a year after. Between one and two years after the attack described above, he had a sudden paralysis of right arm and leg and right side of the face. He was walking on the pavement outside his house when he suddenly fell and was unable to get up without assistance. There was no loss of consciousness. From his description there must have been a moderate degree of aphasia. He now presents the following rather remarkable array of symptoms; a right hemiplegia involving the face on the same side. This paralysis, according to the history, was for a time absolute. He can now walk with some difficulty and can use his arm a little. The tongue when protruded deviates to the right side. The dynamometer shows grasp of right hand 75, left 130. The patellar tendon or reflex on the right side is greatly exaggerated and there is ankle clonus on this side. The left tendon reflex shows little if any exaggeration and no ankle clonus is present on this side. If the left or non-paralyzed tendon be struck with the percussion hammer there is a movement of abduction of the right or paralyzed leg, the abductor associate reflex. This form of association reflex, it may be said in passing, is not uncommon. The right leg is about half an inch smaller than the left and the same difference exists between the right and left arms. There is no aphasia but his articulation is difficult. The movements of his tongue are good and he experiences no trouble in swallowing. General sensibility is unimpaired except around the left eye and temple. Here there is loss of tactile and pain sense; temperature sense remaining normal. Taste is lost on left side of tongue, and for this reason he chews on the right or paralyzed side, though with some difficulty, since he has but imperfect control over the right buccinator and the movements of the tongue to the right, are performed with difficulty. Careful testing would seem to show that the sense of smell was absent on the left side. With the right nostril closed he was not able to perceive the odor of vale-

rian. Examination of the hearing shows nervous deafness in the left ear. Dr. H. H. Friedenwald reports; vision for distance good at 3 feet. Right eye removed for some suppurative disease.

Hemianopsia on right side involving entire side, the lower periphery encroaching on left field. The line of vision runs directly through the fixation point. The pupil reacts about equally whether light is thrown on the right or the left side.

There is no disturbance of the muscular sense and the electric reactions show no qualitative changes. There is a slight quantitative diminution on the right side. There are no sphincter disturbances and no trophic manifestations other than the slight atrophy on the right side from non-use.

It is remarkable that the nerve which is so frequently paralyzed in syphilitic nasal disease, the motor occuli has in this instance apparently escaped; nor is there any evidence of paralysis of the fourth or sixth nerves.

To sum up the symptoms, there is a right hemiplegia and right hemianopsia presumably from central disease, with involvment of the right facial nerve, left olfactory nerve, the left auditory nerve, the left trifacial and the left glosso-pharyngeal.

The explanation of this case would seem to be a gummatous leptomengitis, irregular and extensive in outline but mainly on the left side. Following this was a thrombosis of the left middle cerebral artery, accounting for the right hemiplegia. The hemianopsia is either due to involvement of the optic tract or to disease of the cuneous lobe of the left side. It was noted that the pupil reacted equally whether the light was thrown on the right or the left side. Now according to Wernicke this would indicate that the lesion was back of the *corpora quadrigemina* or in the cuneous. The rule laid down by Wernicke is that when the pupil contracts when light is thrown on either the diseased or the normal side then the lesion is posterior to the *corpora quadrigemina*. When however contraction of the pupil occurs only when the light strikes the sound side of the retina no

contraction following the light stimulation of the blind side then the lesion is somewhere between the chiasm and the *corpora quadrigemina*. It must be said that the observations of Henschen and others, cast considerable doubt upon the accuracy of this symptom. The patient has begun to improve under anti-syphilitic treatment and it is quite possible that the symptoms due to peripheral nerve involvement may partly or entirely clear up.

The Virile or Bulbo-Cavernous Reflex.*

By PROF. C. H. HUGHES, M. D.

Honorary Member British Medico-Psychological Society: President Section on Neurology, American Medical Association; President of Faculty and Professor of Neurology and Psychiatry, Barnes Medical College, St. Louis, U. S. A.; President of Section on Nervous Diseases, First Pan-American Medical Congress, etc., etc.

AT a session of the Societe de Biologie, on May 3rd, 1890, M. Onanoff proposed to designate under the name of bulbo-cavernous reflex, the smart contraction of the ischio- and bulbo-cavernous muscles (erector penis and accelerator urinae) which mechanical excitation of the glans produces in the normal man.

Clinical researches which he has carried on with regard to this phenomenon have permitted him to establish some considerations of real value as to to prognosis and diagnosis of certain nervous diseases.

For his examination he proceeded in the following manner: The index finger of the left hand being placed upon the region of the bulb of the urethra, the right hand rapidly rubs the dorsal surface of the glans with the edge of a piece of paper, or again lightly pinches the mucous membrane. In these conditions the index finger applied upon the region of the bulb perceives a more or less intense twitch which is in relation with the contraction of the ischio- and bulbo-cavernous muscles.

Here are the results M. Onanoff furnished by study of this new sign:

In sixty-two adult subjects regarded as healthy, or at least exempt from all appreciable neuropathy, the bulbo-cavernous reflex has never been absent.

*Presented by the author in abstract to the International Medical Congress at Moscow August, 1897.

In aged persons who had lost their virility, on the contrary, the reflex in question is abolished or scarcely perceptible.

In three cases of common hemiplegia, where the genital functions were not influenced by the disease, the reflex was normal and without exaggeration.

In two cases of transverse myelitis, situated at the level of the superior lumbar region, the reflex was manifestly exaggerated. In these two cases the erection took place without the knowledge of the patient.

In progressive locomotor ataxia it is to be remarked first that as a general rule the urinary troubles appear to have no influence on the bulbo-cavernous reflex.

On the other hand, when the reflex exists in these patients, they have preserved intact or exaggerated their sexual function, while when it is abolished they never have complete erections. Nevertheless, it may occur that certain tabetic patients have seen their genital function diminish although they have preserved their reflex. But then the impotence will be transient and the return of the function is the rule under the influence of treatment (suspension). On the contrary, with that same diminution of the genital reflex, we may see that the impotence will be lasting and the treatment ineffectual.

It results that in this category of diseases the presence or the absence of this sign is very important for the prognosis of genital trouble. M. Onanoff adds that it appears to him to be prudent to speak with some reserve by reason of the small number (thirty-four) of his observations on ataxics. In the last place, the same sign may aid in the diagnosis of certain cases of impotence of such difficult pathogeny as we observe in urinary, hemorrhoidal and divers neuropathic patients. In all these cases, in fact, the bulbo-cavernous reflex is never wanting, and it is habitual that the genital functions re-appear under the influence of the treatment of the principal disease. The author cites in this respect an instructive fact. In diabetis mellitus, with loss of patellar reflex and abolition of genital functions, the bulbo-cavernous reflex persisted although feeble. Now when the

diabetes improved, for some time under the influence of treatment, the bulbo-cavernous reflex became alike stronger at the same time that the patient remarked the awakening of his genital functions.

In nine cases of neurasthenia with complete or partial loss of the genital functions, the bulbo-cavernous reflex was absent in no case.

It is not without interest to determine that the reflex does not depend on the sensitiveness of the mucous membrane of the glans. In fact, an exaggerated bulbo-cavernous reflex was noted in some tabetics in whom this sensibility was greatly impaired. But then the voluptuous sensation was wanting in the patients although the erection was complete and persistent.

M. Onanoff gave the following *resume*: 1st. There exists in man in the normal state a reflex which may be called "bulbo-cavernous." 2nd. In cases of troubles of the genital function, (*a*) the presence of this reflex will indicate a dynamic origin and will permit a favorable prognosis; (*b*) the absence of this reflex will be the sign of an organic lesion and will involve a grave prognosis.—*La Tribune Medicale*, May 8, 1890.

In January, 1891, not then familiar with the fact of M. Onanoff's valuable discovery, though an abstract thereof appeared in my journal, the ALIENIST AND NEUROLOGIST, for October, 1890, from the May number of *La Tribune Medicale*, I said:—*

In a perfectly healthy individual, whose spinal cord is entirely normal, especially in its genito-spinal center, placed supine on a couch without head-rest, nude about the loins, the sheath of the penis made tense by clasping the foreskin with the left index finger and thumb at about the place of the fraenum and pulling it firmly toward the umbilicus, placing the middle, ring and little finger low down upon the dorsum of the virile organ, the dorsum or sides of the penis, near the perineal extremity, then sharply percussed, a quick and very sensible reflex motor response or retraction of the

*ALIENIST AND NEUROLOGIST.

bulbo-cavernous portion will be felt to result from this sudden percussional impression, like that which follows, though less pronounced, in the testicles, after sensory irritation of the inner aspects of the thighs and known as the cremasteric reflex, with this difference only, the cremasteric reflex is a sudden upward movement of the testicle of the side irritated while the virile reflex is a sudden downward jerk. While this reflex, like all reflexes with which I am familiar, is away from the irritating afferent impression, it is in marked contrast with the patellar tendon phenomenon in being away from the heart instead of toward it, as so many reflex movements are. It differs from the ordinary penile erection and must not be mistaken for it (for it cannot properly be called an erection) in this respect, too, viz., that it is downward and not upward and proceeds always from a peripheral and external irritation; whereas, erections more often proceed from direct central (cerebral) impression proceeding downward and outward.

Its action corresponds to the oesophageal reflex, or reflex for swallowing.

I repeat what I said in my first communication; "some skill in palpation—a sort of *tactus eruditus*—is necessary in examining for this sign, the characteristic jerking back of the bulbous urethra within the sheath of the penis being felt only when carefully sought for. It is not ordinarily to be seen."

I have found the sign absent in cases like the following: Pupils unequal, patellar reflex exaggerated and other evidences of *sclerose en plaques*, with history of syphilis and acknowledged feeble virility, and diagnosis by a competent ophthalmologist of optic atrophy. I believe it will be found to be quite generally absent when there is optic atrophy, unequal pupils and other evidences of cerebral sclerosis, or multiple cerebro-spinal disease of this nature. I have found this sign absent in the status epilepticus, but not necessarily modified in hemiplegia and have seen it exaggerated in cerebral paraplegia.

From my earlier records, in which this reflex was either impaired or absent permanently or periodically, I have noted

in my first communication on this subject that the first three were middle aged; of these the first was a married brewer and gave a history of syphilis; erections feeble; white atrophy of retina, unequal pupils—left hand larger than right; vision obscure in both eyes; cerebro-spinal sclerosis (multiple and lateral); reflex absent.

The second gave a history of former syphilis, though at time of observation he was in good flesh and general health excellent; miller and merchant; lives in country; impotent —seldom has erections, but at times has good erections and completes the sexual act; reflex greatly impaired when examined.

The third was impotent; virile reflex always absent. Had no erections.

The next two were children under twelve years of age; of these the first was an epileptic country boy; the second, also a country boy, had epilepsia gravior. Reflex scarcely perceptible on repeated examinations since the first test.

The next was that of a civil engineer, single, aged about 28, with nocturnal epilepsia from excessive masturbation; reflex absent.

Additional experience since the discovery of this important diagnostic sign only confirms the conviction uttered in my first paper, viz., should receive further consideration at the hands of neurological clinicians, for it appears worthy a place in clinical neurology with Westphal's paradoxical contractions, Erb's reaction of degeneration, or any of the hitherto recognized diagnostic reflexes, or clonuses.

I have found an analogous reflex to this phenomenon in healthy females.

It may be elicited in normally vigorous persons when that condition of the organ is present that we find coexistent with a desire for coitus, when the sexual act is about to commence and shortly after coitus, if the sexual desire has not been gratified to satiety. It can be evoked during priapism and during penile relaxation, if power for a second coitus remains in the organ.

In order to secure the attention this sign deserves at the hands of physiological scientists and clinicians, I fee

justified in repeating what I have said before on the subject, viz.:

We are on the verge of further most important discovery in the direction of physiological and pathological reflex phenomena and on the verge of an enlarged comprehension of their value in diagnosis and prognosis. I believe that every part of the body supplied by an afferent (sensory) nerve communicating with a center, whether cerebral, spinal or ganglionic, capable of an efferent or motor response, will be found susceptible under appropriate stimuli (electrical, mechanical or special), in normal or pathological state, responsive in some way and that this plus or minus responsiveness is yet to have far more remarkable value in clinical estimation than is now accorded it or dreamed of in medical minds. For instance, in our clinical investigations, we take into consideration such purely physical reflexes (in addition to the cardiac and visceral movements) as the palpebral, pupillary, naso-pharyngeal, visceral, cremasteric, anal and the tendon reflexes of the lower and upper extremities, normal and abnormal and the clonuses which are of the nature of reflex phenomena prolonged into rhythmical movements.

Many of these are more or less influenced by conditions of psychical inhibition.

Then we have in disease often to consider the state of the psycho-physical reflexes, as the involuntary shedding of tears, unintentional or causeless weeping, involuntary and unsuppressible laughter, shouting, involuntary exclamations of various kinds, as of fear, disgust, joy, etc., and sudden involuntary and unrestrainable psycho-motor responses of various kinds, virile erections under erotic psychical impressions. These latter are downward influences, reflex responses from psychical excitation through peripheral impressions transmitted through sight or other senses, or originating altogether in ideational center. Then we have psychical responses to psychical peripheral impressions, such as the sudden mental states and expressions following physical impressions, like the immediate outcry of peripheral pain—the true nature of a reflex phenomenon wher-

ever we find it, being a peripheral impression transformed into an immediate, or almost immediate, motor response or expression.

If we take into consideration how much of our power for regional diagnosis has been aided within the past few years by what we already know of these reflexes, especially of the knee-jerk, Achilles reflex, the foot clonus, the anal, vesical, cremasteric and virile, how much more may we not hope for with confidence, if we but persevere in our search for unknown manifestations of these phenomena? I have already elicited in certain moribund states, an oral reflex, as heretofore announced and a physiological anal reflex and have confidence even before its announcement, not knowing it was new, much that Rosolimo asserts concerning the reflex of the anal sphincters, this latter reflex serving as an especially valuable differentiating test where sexual failure is to be early distinguished from commencing vesical or rectal paralysis.

The following clinical records appeared in my paper:

Case 1—Mr. J. H., aged 23, single, locomotive fireman, first presented for treatment July 11, 1891, with the following history: Three years ago, in alighting from his locomotive running at the rate of fifteen miles an hour, he sprained his back, but it did not give him much trouble at that time. About three weeks ago, while perspiring freely, he "caught cold" and the perspiration suddenly stopped—from this patient refers present trouble, though he had an attack of la grippe in February and about the latter part of April he noticed impairment of right leg. Four years before he had indulged in sexual intercourse to excess—upon one occasion had connection seven times in twenty-four hours. He has had no inclination for sexual intercourse lately; thinks he has had sexual desire but a half-dozen times during the past two years.

Bowels constipated, for which he resorts frequently to purgatives. Had an attack of vertigo to-day and fell to floor while in the act of yawning. Pulse (sitting) 66; upon slight exertion (walking about the room) pulse increases to 78. Right knee-jerk abnormal; R. quadriceps

clonus marked up to origin of muscles—a slight tap below right patella (not sufficient to produce patellar reflex) will cause quadriceps muscle to vibrate. Right knee response below normal, left knee-jerk impaired, no quadriceps clonus, Right gastrocnemius reflex normal; right plantar and solar reflexes exaggerated and clonus follows reflex excitation; plantar surface of right foot hyper-aesthetic. Flexion of right foot incomplete one-half, rotation impaired one-half, flexion and extension impaired about one-half. While sitting he can only lift right leg and thigh about three-fourths as compared to left. Has head and backache. No spinal tenderness, tender over crest of right ilium and beneath ribs of right side.

Aesthesiometric tests of finger-tips give normal results. Numbness of left great toe, but no abnormal aesthesiometric sign. Has slight right scrotal hernia; has phimosis.

Case 2—Mr. Chas. E. H., 21, occupation, farmer; single; applied at my office for treatment August 15, 1891, and gave the following history: About a year ago he slept on the damp ground for five successive nights, each morning he felt stiff and head was sore. As the effect of this he was sick in bed with a fever for a week or more, legs were paralyzed, bowels, constipated and urine retained—was catheterized several times. He was attended by two local physicians. Says he suffered severe pain during first three weeks of illness and was troubled with erections. Patient's present condition is as follows: Pulse 90 (patient sitting) and full, temperature 100 Fah., appetite and digestion good and sleeps well; no erections at present. Some pain in lumbar and sacral regions. Crosses right leg over the left with difficulty, cannot lift leg without assistance of hands, cannot stand alone. Patellar tendon reflex is absent, virile reflex present, but impaired, cremasteric reflex normal and has abdominal reflex. Has never had syphilis or any zymotic disease.

Since this singular reflex sign was first discovered by me independently, but not published, prior to M. Onanoff, I have discovered another and a better method of eliciting it. When the patient is lieing supine and the reflex

re-enforced, with legs drawn up, and by engaging his attention in conversation, preferably on some erotic subject for psychical re-enforcement, the foreskin is held between the thumb and fore-finger at its orifice, beyond or about over, the meatus urinarus, and stretched or pulled steadily upward with considerable force so as to be a little disagreeable to the individual, if necessary, the penis will then retract backwards and downwards and the characteristic reflex will be elicited in normal or exaggerated response or fail, thus telling you whether your patient's virility is impaired, intensified or in abeyance to some morbid state of the spinal center of the cord presiding over this genital reflex or whether old age has destroyed this reflex.

The medico-legal significance of this sign in qnestions of rape or paternity or sexual capacity in any direction is at once apparent, and it should be more diligently studied than it has been. Finding it in the healthy, it should be practiced till the *tactus eruditus* essential to eliciting it where it possibly exists, is fully acquired. It must be practiced often to be plainly felt, for it is far oftener felt than seen and is best felt when sought after the manner of M. Onanoff, viz., with the tactile sense of a trained index finger or thumb or both placed on the dorsum of the virile member.

I conclude this brochure with two communications from our lamented confrere, M. Brown-Sequard. One of them, a personal note written in English, for the distinguished savant was once an American citizen, the other, an editorial critique in *l'Archives de Physiologie*, which, next to the work of the laboratory that made him immortal, he most highly prized of all his scientific treasures.

NICE, March 16, '91.

DEAR DOCTOR HUGHES—Please excuse this bad writing. I am kept in bed by phlebitis.

I am sorry you are not to come to Europe this year, but I hope you will come bye and bye and that I will then be in a state of health allowing me to have the pleasure of seeing you.

I read with great interest your paper on a Virile Reflex. Unfortunately the facts you certainly discovered have been previously discovered and published by Dr. Onanoff, who communicated them at a meeting of the Biological Society, of which I am the president. He made that communication on the 3rd of May last. I send you the number of the Proceedings of the Society containing Dr. Onanoff's paper. You and he agree perfectly on every point.

In an article of the next number of *The Archives de Physiologie* (April number), I give a short account of the facts you found, not knowing of the publication made in Paris. A great deal more is to be discovered as regards reflexes than is supposed, and if you look out, you will most likely find absolutely new facts.

Believe me, dear Dr. Hughes,

Yours faithfully,

(Signed) M. BROWN-SEQUARD.

Nous recevons d'un medecin tres distingue de Saint-Louis (Missouri, Etats-Unis), le Dr. C. H. Hughes, directeur d'une importante revue—THE ALIENIST AND NEUROLOGIST—un travail qui a pacu dans le numero de janvier dernier de ce recueil et qui a pour objet de signaler un nouveau reflexe dont l' absence peut de la valeur comme diagnostic dans des cas de certaines affections de la moelle epiniere. Il s' agit d'une contraction du bulbo-caverneux, sous l'influence d'une irritation de la surface dorsale du penis. L'auteur cite des cas assez nombreux ou il a vu manquer ce reflexe, qu'il crovait avoir decouvert. Deja cependant le 3 mai 1890, le De. Onanoff avait communique a la Societe de biologie (voy. Comptes rendus, p. 215), untravail donnant les resultats obtemus par lui sur un grand nombre de malades et d'individus en bonne sante, etablissant l'existence a l'etat normal d'un reflexe ischio et bulbo-caverneux, sous l'influence d'une irritation de la surface dorsale du gland.

Il est evident, d'apres ces publications, qu'um reflexe, meritant d'etre connu, existe dans les organes genitaux males. MM. Hughes et Onanoff sont d'accord a montrer

dans quelles circonstances on constate l'ansence ou l'exageration de ce reflexe. Nous nous bornerons a ajouter que le travail de M. Onanoff est institule: "Du reflexe bulbocaverneux" et qui celui du De. Hughes porte le titre de "Note sur le reflexe viril."—*Archives de Physiologie*, numero du April, 1891.

Another important clinical and diagnostic fact has come under my observation on several occasions in connection with the eliciting of the virile reflex sign, viz., when the organ is siezed, the patient recumbent, the foreskin stretched furcibly upward towards the umbilicus and vigorously tapped on the dorsum penis in cases of spinal irritation and myelasthenia, the lower extremities are thrown into violent reflex agitation, the quadraceps extensor femoris muscle contracting and the contractile effect extending to the adductor muscles of the thigh and the extensor tibial muscles. This phenomenon appears in these cases when this virile reflex sign is even feeble, and partial impotency and sexual neurasthenia exists. This phenomenon is found also to coexist with the presence of the cremasteric reflex.

This matter however will be made the subject of a future communication.

The knee phenomenon in these cases is sometimes comparatively feeble.

SELECTIONS.

NEURIATRY.

CARDIAC NEUROSES.—At a recent meeting of the Italian Medical Society, a report of which is published in the *Independance medicale* for November 3rd, and abstracted in the *New York Medical Journal* for November, ultimo, Dr. Silva is reported as having made a special study of paroxysmal tachycardia and bradycardia. The former, he said, was developed especially at maturity, without distinction as to sex, under the influence of great emotion or from excessive mental and physical exertion. It was manifested by sudden attacks, vertigo, buzzing in the ears, and contractions of the neck and of the epigastrium. The heart beats were accelerated, and the number sometimes reached two hundred and fifty and even three hundred pulsations. If the thoracic region was examined at the time of an attack, an undulatory trembling would be perceived near the cardiac region, and auscultation would reveal a fœtal rhythm of the beats. The cardiac sounds were so accelerated that it was scarcely possible to distinguish the different periods. Sometimes, however, a systolic souffle could be perceived, which disappeared after the attack. The pulse was small and the face pale. In addition to the vertigo, there were delirium, insomnia and oliguria, but there was no fever. Mydriasis or myosis of the eyes was observed.

It was not possible, said Dr. Silva, to determine the certain cause of these attacks, which manifested themselves without any apparent cause and lasted from a few minutes to several hours. They became grave when they exceeded the latter duration and terminated then in death during an asystolic attack. More frequently the attack was terminated

suddenly at the end of a few hours by polyuria and profuse sweating, when the patient recovered. Attacks of tachycardia might follow each other at intervals of a few days, or there might be very long respites.

The diagnosis, said Dr. Silva, was established by the abruptness of the paroxysms, which were not accompanied by sounds of organic lesions of the heart. This abruptness of the symptoms, which broke out and disappeared suddenly without leaving behind them any alteration in the general health, was also a guide to the clinician in distinguishing tachycardia from the true endocarditis; and in angina pectoris arhythmia, which was generally absent in tachycardia, was present.

Regarding the pathogeny of this affection, Dr. Silva said that many theories had been advanced. According to certain authors, it was an excitation of the great sympathetic; according to others, it was, on the contrary, an ephemeral paralysis of the pneumogastric nerve which caused the attack. Debove and Courtois-Suffit thought it was a bulbar neurosis; Fräntzel thought it was an undiscovered lesion of the myocardium. The speaker thought that the beginning of the attack depended upon the pneumogastric nerve, and that later this attack was kept up by the poisons produced by the excessive work of the heart.

Regarding bradycardia, or the slow pulse of Charcot, the author continued, this syndrome was manifested especially in old persons. The patient was attacked suddenly with malaise, the face became pale, and he fell to the ground in a condition of trembling and profuse sweating. The pulse slackened and did not reach more than from seven to ten beats. Soon the patient recovered consciousness himself, and all the alarming symptoms disappeared at the end of a few minutes. The attacks might break out without any apparent cause or after emotion, anger, etc. The patient might succumb after the first attack. More frequeutly the attacks occurred every two weeks or every month; in the interval the patient, who might live many years, was very well.

Dr. Silva stated that the diagnosis of bradycardia was very easy and the prognosis very grave.

Charcot and Caracretti had thought it was a circulatory or functional anatomical lesion of innervation, but Dr. Silva thought, on the contrary, that bradycardia depended sometimes upon a lesion of the centre of the pneumogastric nerve, sometimes upon arterio-sclerosis, and at other times upon a lesion of the myocardium.

The two affections, he thought, should be treated in the same way—that is, with hydrotherapy, electricity, thoracic massage, and climatic treatment.

EPILEPSY AND AUTO-INTOXICATION.—Dr. C. Agostini has followed up the researches of Voisin and Mirto, who have shown (*Journal of Medical Science*, July, 1897) that the urine of epileptics possesses a special toxicity (and those of a number of other observers have demonstrated that true epileptic fits can be produced as the result of auto-intoxication by abnormal products developed in the gastro-intestinal canal), and has made an investigation into the composition and toxicity of the gastric fluid and urine in epileptic insanity at various periods in relation to fits. He finds that in the intervals between the fits the gastric juice is in most cases normal as far as can be recognized by mere chemical analysis with, however, a tendency to hyperacidity and especially excess of hydrochloric acid. For a short time previous to a fit and for some time afterwards, there are changes indicating a condition of transitory dyspepsia. An epileptic convulsion in proportion to its duration and intensity greatly disturbs the whole digestive functions of the stomach, increasing the secretion of hydrochloric acid and mucus, favoring the development of abnormal fermentation products leading to the appearance of biliary acids, lowering the peptic action and diminishing the sensibility, motility and absorbing power of the organ. In the intervals between the fits the toxicity of the gastric juice (tested upon rabbits) is not necessarily greater than in healthy individuals provided the patient is not suffering from chronic gastric catarrh. In the prodromal period in relation to a convulsive seizure, and especialy in those cases in which there is chronic gastric catarrh, the stomach wash displays energetic and constant toxic properties.

After a convulsion this toxicity is still further increased. Attacks of petit mal increase the gastro-toxic power in a similar manner. The toxic principles appear to be of the nature of leucomaines and are probably the same as those that are found in the gastric fluid of dyspeptics in general. Examination of the urine shows that in the intervals between the fits the tissue metabolism of epileptics is below normal as evidenced by the elimination of azotised substances (urea, uric acid and creatinin) phosphoric acid and chlorides. The excretion of azotised products is further diminished in the prodromal period. After a violent motor fit there is an increase in the density and acidity of the urine and in the elimination of all the ordinary products of tissue change except chlorides. None of the abnormal constituents of the urine that may appear after a fit do so regularly or constantly. The urine of epileptics has always a greater toxicity than that of the normal individual. This toxicity is increased in that period immediateiy preceding a fit. After a convulsion the urine is hyper-toxic and remains so for more than twenty-four hours. The toxicity is always proportionate to the gravity of the gastro-intestinal disturbance associated with the fits. It is probably the products that have the general reaction of leucomaines. The administration of bromides distinctly diminishes the toxicity of the urine.

Agostini maintains that in a large proportion of epileptics the fits are preceded by marked symptoms of gastric catarrh. In the intervals between the fits the catarrh in most cases disappears, but in many it persists, becoming aggravated about the time of the fits. In those patients who have chronic gastric catarrh the epileptic phenomena are more frequent and more severe. He believes that this chronic or transitory gastric catarrh is accompanied by putrefactive changes in the contents of the stomach and intestines and the formation of toxic substances which become absorbed and tend to accumulate in the blood giving rise to the malaise,headache and furring of the tongue which precedes the occurrence of a fit and finally determining the convulsion or series of convulsions. He has found that all measures tend-

ing to the elimination of such toxic products or to the prevention of their formation, diminish the frequency of the fits or altogether prevent them. He further believes that the process of oxidation is usually deficient in epileptics. Hence leucomaines absorbed from the intestinal canal are not completely oxidized as in healthy persons. He also thinks it is probable that in epileptics on account of the morbid functioning of the nervous system, excretory processes take place with abnormal slowness so that there is a tendency to the retention in the system of products of reduction that ought to be eliminated. He fully recognizes that idiopathic epilepsy is essentially a cerebral disease and would look upon it as the result of a "polymorphic degenerate state," the most constant and most pathognomonic feature of which is the existence of "somatic and functional asymmetry." He rejects the view of Chaslin and others, according to which epilepsy is due to a special brain sclerosis. But while admitting the existence of a cerebral abnormality that predisposes to epilepsy and often actually determines it, he contends that it is logically and experimentally proved that in many cases the determining cause of the repetition of the fits is auto-intoxication. The irritation occasioned by the toxic agents produces either hyper excitability of the psycho-motor centres or exhaustion of their inhibitory power permitting the tumultuous action of the lower automatic centres. These toxic agents need not have epileptigenetic properties. They act simply by increasing the vulnerability of the imperfect and unstable nervous system of the epileptic.

Since auto-intoxication plays so important a part in the production of epileptic fits, Agostini advocates the endeavor as far as possible to remove the factors of such intoxication. In the first place, correct gastro-intestinal catarrh when it is present, and endeavor to remove toxic substances that may have formed in the alimentary tract. As the best means of attaining this object, he recommends repeated washing out of the stomach with salt water, especially when fits are anticipated and before the occurrence of a crisis. He also advises the use of purgatives, saline enemas, diuretics (especially lactose) and the abundant administration of milk

along with salol or naphthol as intestestinal antiseptics. In the second place—endeavor to increase the activity of processes of oxidation and of normal tissue changes in general. These objects, he thinks, are best secured by the use of small doses of alcohol, careful hygiene, fresh air and moderate muscular exercise. With regard to diet he does not agree with Haig that epileptics should become vegetarians. He has found that a purely vegetable diet gives even worse results as regards the fits than a purely meat diet, a circumstance which he attributes to the fact that vegetable albumen putrefies more readily than animal albumen. He recommends a milk diet with plenty of milk. Lastly, we should endeavor to diminish the reflex activity of the cortical nerve centers, which in epileptics are in such unstable equilibrium. He believes that the only really effective drug for this purpose is potassium bromide. He recommends that it should be given in somewhat smaller doses than those generally used, and that it should be combined with salol. Its efficacy is increased by the antitoxic therapeutic measure already mentioned. If gastric catarrh appears the administration of bromides should be suspended and the attention directed to the removal of the catarrh.

CLASSIFICATION OF EPILEPTICS.—So little is known of the etiology of epilepsy that it is not possible, in the light of present knowledge, to make a satisfactory classification of its forms. The terms grand mal, petit mal, psychic and Jacksonian are largeiy symptomatic designations, and bear little relation to causative factors. A classification based strictly on etiology is not possible, but none will deny that such a classification would be more scientific and valuable. The classification here offered is not held to be perfect or even satisfactory, but is used as a working basis for future improvement; 1, genito-neuropathic; 2. post-paralytic; 3, traumatic; 4, hystero-epilepsy; 5, hereditary; 6, imbecilic; 7, acquired; 8, senile.—Dr. Frederick Peterson, Third Annual Report of Craig Colony of Epileptics.

PSYCHIC ANESTHESIA.—Dr. Charles W. Burr, of Philadelphia, remarks that, at the November, 1896, meeting of

the Philadelphia Neurological Society (*Journal of Nervous and Mental Disease*, May, 1897), he reported the case of a woman who, suffering from mind blindness, was also unable to recognize objects by touch, though tactile sense was normal. He suggested the name tactile amnesia for the condition, maintaining that it was analogous to amnesic aphasia. At the time the report was made he had seen but one other case, and in both there were other symptoms. Soon after a gentleman came to him complaining of the same trouble unaccompanied by other symptoms, confined to one arm and due, as will appear, to an entirely different cause. His history is as follows: B. C., 24 years old; single; family and personal history negative. When about 10 years old he was accidentally struck on the side of the head by an axe-handle with such force as to throw him into a river, on the bank of which he was standing. At first he was thought to have been drowned, but examination of the head showed a simple depressed fracture of the right parietal bone over the motor area. He remained in a state of alternate coma and delirium for about three weeks. On recovering normal consciousness he found himself partially paralyzed on the left side, including the face, and completely anesthetic upon the same side. The palsy and anesthesia entirely passed away in a few months, sensation returning before motion. He was supposed to have recovered completely until, on putting his left hand in his coat-pocket for the first time after his illness, he discovered he could not tell what he had in his grasp, though he had the sense of touch. Little attention was paid to this symptom at the time, and he was told it would soon pass away. It has not. *Examination.*—He is a spare but fairly healthy-looking young man. He is scholarly and thoughtful but neurotic, supersensitive and morbid. The left leg, arm, and face are slightly smaller than the right. There is no palsy of either side, but he uses the left hand a little awkwardly. Gait and station are normal. The knee-jerks are equal and a little exaggerated. There is no depression nor pain on pressure at the seat of the alleged fracture. Pressure on the vertex over an area about as large as a one-cent

piece causes mental confusion, a condition of dreaminess, and if continued, light hypnotic sleep. With the eyes shut he recognizes well variations in the positions of the hands or arms. Tactile sense is normal on both sides. On the entire left side, even on the finger-tips, he fails to localize touch. He is absolutely unable to recognize any object put in his left hand, but knows he is grasping something. His grasp is good and remains good when the eyes are shut, there being no muscular relaxation even after several minutes. In the right hand there is no sensory trouble. On both sides temperature and pain sense are normal, and he can distinguish dull from sharp. There is no difficulty with speech, vision, hearing, taste, or smell. The urine is normal. Examination of the thoracic and abdominal viscera is negative.

Dr. M. W. Zimmerman examined the eyes and reports, "Right eye: The media are clear and the fundus is normal. The field is difficult to take, the eye easily wandering in any direction without any apparent reason or object. On the temporal side the red field extends beyond the blue. Left eye: The media are clear and the fundus is normal. Fixation is less difficult. The red field extends beyond the blue in the larger part of the circumference. There is practically no contraction of the field for white in either eye. The fields were taken several times on different days and were constant. The pupils are equal and react well to light and with accommodation."

To sum up, we have a man who for some years, ever since a serious injury to the head causing a temporary hemianesthesia and hemiaplegia, has lost the ability to recognize objects by touch in the left hand, though simple tactile sense and the so-called muscle sense are preserved, and who has also a partial reversal of the fields of vision, is neurotic and susceptible to hypnotism.

Simple as the symptomatology of the case is, there is much in it that is at present inexplicable. It contains problems of as much interest to the physiological psychologist as to the neurologist. It differs—and this is of importance—from similar cases in the loss of the ability to loca-

lize sensation, and I cannot but believe that this inability stands in close causal relation to our patient's loss of the power of recognizing objects by touch. Touch cognition is in reality a very complex process. To do it accurately tactile and sometimes pain and temperature sense, muscle sense and power of localizing, must be normal. We have much to learn concerning all these. Muscle sense certainly depends upon the afferent impulses from the joints, the muscles, and though in much less degree, the skin. The means by which we localize a touch on finger or toe, as happening at any one point, the psychologists have not yet settled for us, and how we group the many sensations from an object into one whole is absolutely unknown. In my other case the difficulty lay in interpreting the sensations felt, because of the loss of the stored up tactile images, the patient having in other words no sensory tactile recollections with which to compare her recent sensations. Hence the name tactile amnesia. But in this present case, as said before, there is another element. The patient cannot localize, and it is easy to understand that if, for example, while holding a key, he cannot tell what fingers the sensations come from or even refers some to the upper arm he can have no proper conception of the form of the key, cannot tell that is a key. It would seem as if there was here a contradiction in the statements of the patient. If he knows the positions of the fingers and can feel touch, such knowledge should aid him in recognizing the object grasped. Yet he says he cannot. Although at the mercy of his veracity, Dr. Burr believes him. Since the trouble seems to depend in this case upon the loss of the localizing sense, and we have no means of knowing whether he has tactile amnesia or not, it will probably be wiser to call it by the broader and less definitive term psychic anesthesia.

What central lesion has caused the symptom and where it is situated cannot be determined. It is most probable that he had a fracture of the parietal bone with slight injury to the motor cortex and the neighboring sensory region. The injury could not have been severe or the

hemiplegia and hemianesthesia would not have been so transient and the recovery so complete. But it is not proven that his present trouble depends upon the same lesion. Parietal fracture with hemiplegia and temporary anesthesia is very frequent. Psychic anesthesia is very rare. Dr. Burr is inclined to believe that in this man the condition is hysterical. He is hysterical in temperament, has partial reversal of the visual fields,and is susceptible to hypnotism. Dr.Burr thinks the physical injury has acted to suggest the symptom, which in many regards is like the "systematized anesthesia" not infrequent in hysteria. This does not explain very much, but further we cannot go.

BREMER'S BLOOD TEST OF DIABETES.—In a communication to the *New York Medical Journal* of December 11th, 1897, Dr. L. Bremer reviews this subject and his critics as shown in the following extracts:—

There were two factors shown in the method published in this journal, causing uncertainty and divergence of results in the hands of experimenters not entirely familiar with the details of hæmatological researches: 1. The indefinite chemical composition of the reagent recommended and described by me, an eosin-methylene-blue compound, rather difficult of preparation. 2. The insufficient exactness of the process recommended for hardening the blood film.

I have succeeded in doing away with these objectionable features and I have devised a method which even persons of limited experience or none at all in hæmatological work will be able to execute. Briefly stated, the mode of procedure is as follows: Prepare two sets of blood specimens, one of diabetic, the other of non-diabetic blood, the films to be spread in rather thick layers on cover-glass slips or slides. The latter are preferable for naked-eye demonstration, because they are more easily handled. Place the two sets, say eight or ten of each, in a heating oven, the tray on which they rest to be at least six inches above the bottom of the apparatus. By means of a good-sized gas flame run the temperature up to 135° C. (this being the heat optimum) within from eight to ten minutes.

After cooling, place two slides, one with a diabetic, the other with a non-diabetic blood film, back to back, in a one per-cent. aqueous solution of any of the stains above named for from two to five minutes. Then rinse thoroughly in distilled or filtered water and dry. It will be found that Congo red and methyl blue have not stained the diabetic blood, or on prolonged exposure have stained it feebly, whereas the non-diabetic blood film has assumed the red or blue stain respectively. Biebrich scarlet has the opposite effect; it stains the diabetic but not the non-diabetic blood, unless the specimens remain too long in the reagent. The solutions ought to be freshly prepared, old ones losing the differential staining capacities.

I have discarded the eosin-methylene-blue compound for practical naked-eye demonstrations, and the hardening of the blood film by means of boiling ether and alcohol has likewise been abandoned. The color reagents now employed by me are Congo red, methyl blue (not methylene blue), and Biebrich scarlet. The hardening of the blood film and the fixation of the hæmoglobin or the erythrocytes are now effected by heat exclusively.

The reliability and positiveness of my tests were demonstrated before the Société médicale des hópitaux (Paris) by Dr. P. Marie, physician in chief of the hopital Bicetre, and Dr. Jean le Goff (P. Marie et J. le Goff, *Bull. et mém. de la Soc. méd. des hôp. de Paris*, No. 16, p. 626). Again, in a monograph on the subject, *Sur certaines réactions chromatiques du sang*, Le Goff describes my methods and testifies to the exact reproduction of my results. Lépine and Lyonnet (*Lyon médical*, June 7, 1896) affirm likewise the correctness of my observations, but maintain that leucæmic blood gives the same reaction as diabetic blood. This is true only of the eosin-methylene-blue compound, when the alkalinity of the reagent, by the predominance of the methylene blue, is excessive. With a more neutral combination the difference is easily established. When the reagents mentioned above for naked-eye demonstration are employed, the difference of the stains is as marked as when any other non-diabetic blood is used for check specimens.

I do not think that, as is maintained by the same observers, the differential reaction is a mere matter of a different degree of acidity and alkalinity of the blood, but hold that a peculiar change of the hæmoglobin of the diabetic erythrocytes is at the bottom of the phenomenon. What the nature of the change is, I do not know. Le Goff also repudiates the theory advanced by Lépine and Lyonnet. The experiments of V. Patella and A. Mori (Reazioni cromatiche del sangue dei diabetici, *Gazetta degli ospedali e delle cliniche*, November 15, 1896) yielded negative results, because these investigators did not strictly adhere to the directions laid down by me.

PLEASURE WITHOUT OTHER SENSATIONS.—While exploring the sensations of various parts of the body about a year ago, I chanced to notice a phenomenon of which I find no mention in the various physiologies and psychologies. I submit the brief statement in the hope of learning if any one has previously made a similar observation, or if the fact, which I have repeatedly observed, can be confirmed by physicians who have the opportunity of testing large numbers of patients. The observation may be summed up as follows: Whereas the surface of the glans penis is moderatively sensitive to the pointed end of a toothpick and responds strongly to the point of a pin, the mucous membrane around the orifice of the urethra is absolutely lacking in sensations to touch in either case, although strong pressure with the point of a pin will cause pain. There is, however, another sensation aroused by the application of any object to this mucous membrane—namely, that of pleasure—which increases directly with the degree of erection. The confirmation of this observation would establish the hitherto unrecognized fact of the separate existence of pleasure as an independent sensation, a fact of considerable importance in the psychology of feeling.—Scripture, in *New York Medical Journal.*

THE BECHTEREW TREATMENT OF EPILEPSY.—Eight cases of epilepsy treated for a period of six weeks with a

mixture of bromide of potassium, codein, and adonis vernalis, are reported by De Cesare (*Rif Med.*, August 13, 1897). The medicine is given twice daily. In four cases there was complete suspension of the fits; in three other cases the fits were replaced by infrequent attacks of vertigo, and in the last case there were four attacks of vertigo and two convulsions. In each case the attacks were very much reduced in frequency; no bad results were observed. The digestion was not impaired, the pulse was fuller, the temperature normal, diuresis increased, sleep uninterrupted and calm, and the mental condition unchanged. The author believes the results were due to the combination of drugs, and not to the bromide alone.—Drs. Mistle and Greggs, Abstract, *Canadian Practitioner.*

[The true test of value is in leaving out the Bromide of Potassium.—Ed.]

THE SO-CALLED BRYSON'S SYMPTOM NOT A SIGN OF EXOPHTHALMIC GOITER.—Dr. Hugh T. Patrick, of Chicago, maintains that the Bryson symptom in exophthalmic goitre is of no significance, showing by a study of forty cases that diminished chest expansion sometimes found in this disease is not pathognomonic, but is simply an expression of the general myelasthenia which he claims is always present therein.

[We knew this long ago and did not suppose any one had seriously regarded this as a real symptom.—Ed.]

ARTHROPATHY AND SYRINGOMYELIA.–Kienbock showed a female, aged thirty-three, at the Medical Club, with much swelling on the extensor side of the elbow preventing voluntary movement, although passive movement was normal. The skin was healthy and unchanged, except at one spot, where a cicatrix was present, as the result of a burn; on the fingers a few sores and scars were still to be seen.

Subjectively she complained of a feeling of cold all over the left arm, in respect of which it was noticed as an important fact in the case that it was dissociated with the paralysis of sensation, which extended to the pectoralis and supra-scapularis. The application of heat to the patient over these parts gave no pain.

The external appearance of the patient conveyed the impression of arthritis deformans, while the other symptoms left no doubt of the disease being of a neuropathic character. The distinction between tabes and syringomyelia is not difficult when we reflect on the present phenomena of dissociated sensation-paralysis, exalted reflex, clonus, and the absence of all other signs of tabes, which left syringomyelia as the only alternative. Examined by the Roentgen rays few changes could be observed; the bones seemed a little thicker than usual, but no calcareous deposit could be detected in the joints. Another important fact in the case was the absence of any unilateral muscular atrophy. In the discussion, Schleisinger said the most important symptom to his mind was the absent trophic disturbance, this being an early phenomenon in syringomyelia.—*Vienna Cor. Med. Press and Circular.*

LOCOMOTOR ATAXIA.—Landon Carter Gray, of New York, stated that a study of seventy-seven cases of locomotor ataxia recorded in his case books had led to one conclusion—that in every instance the symptoms had been improved by treatment, and in a few the improvement had been startling. In most of them it had been satisfactory. In his opinion, rest was the most important part of the treatment, for every muscular movement involved a strain on the diseased parts. In the severer cases the patient should be in bed for weeks, whereas in the milder ones a few hours a day in bed might be sufficient. The amount of rest required varied greatly with different individuals. Whatever might be the rationale, it was certain that antisyphilitic treatment would often have a most startling effect on the progress of the case.—*Universal Med. Jour.*

THE ELEVATOR AS A CAUSE OF NERVOUS DISEASE.—It is asserted by reputable medical men that some of the increase in the number of cases of brain fever and nervous disorders is due, in no insignificant degree, to the extension of the elevator system. Most people feel a sensation as if they were falling when going down in a rapidly moving "lift," and the constant repetition of this seemingly slight

dizziness induces chronic headache, or other nerve disorders, and even leads to brain fever in some instances. Those who habitually ride up and down six or eight stories two or three times a day almost inevitably become a prey to some form of nervous trouble.—*Coll. and Clin. Record.*

PERSPIRATION-NEURASTHENIA.—Dr. Peyer (*Med. Times and Hosp. Gaz.*) reports the case of a man thirty years of age who, during the last four years, had perspired profusely in the day, and, during the last month, also in the night. So profuse was the perspiration that he was obliged to change his clothes several times during the night. He had become very emaciated. Many drugs were tried, but without any benefit. As the patient confessed to having masturbated for many years, the diagnosis of sexual neurasthenia was made. He was treated with sounds and the psychrophore, and after six weeks of this treatment the perspiration ceased and the patient was completely cured.—*Cincinnati Lancet-Clinic.*

NERVOUS VOMITING.—Dr. Alfred Meisi (*Centralblatt fur die Gesammte Therapie*, 1897) reviews the diagnostic points, summing up the therapy as follows: 1. For the general neurosis, change in surroundings, country air, sojourn in an institution, rest, hydrotherapy, and general faradization. 2. Diet of solids administered in small quantities. If intolerance is severe, then rectal enemata for a few days. The stomach-tube also may be used, and milk to three ounces inserted several times daily. In mild cases one-sixth of a grain of menthol with a grain and a half of sodium bicarbonate after meals, or suppositories of one-third of a grain of extract of belladonna and half a grain of codeine are useful. If there is hysterical hypersecretion, bismuth preparations with alkalies in large doses are useful. Cold applications, as ice-bag or ether spray, may assist the action of the drugs. Suggestion is to be made use of, either as to the effect of drugs, or that food which is introduced through the stomach-tube cannot be vomited, or a fast for twenty-four hours may be ordered, and then liquids in teaspoonful doses at short intervals given. After cessation of the vom-

iting roborant medication, iron and arsenic, best as arsenical mineral waters, and strengthening feeding are necessary to prevent relapse.—*American Journal of Medical Sciences.*

BLOOD TREATMENT OF DISEASE.—Whatever we may regard as the antecedent neurotic and metabolic change of gangrene, the reconstruction of the blood is indicated in all efforts at treatment. An interesting paper by Dr. C. S. Eldridge, of Chicago, thus discusses the subject of supplied blood versus gangrene:—

"During the next week there chanced to come under my observation the only case of gangrene of the scrotum that I had ever seen. It had resulted from subcutaneous ligature of the pampiniform plexus of veins for the cure of varicocele in an anæmic subject. The gangrene appeared at the bottom of the scrotum a few days after the operation, and spread rapidly. In spite of all efforts to check its progress the lower half of the scrotum rotted away, exposing the testes, upon which gangrenous spots speedily put in an appearance. Red streaks extending from the scrotum upwards and outwards along either groin indicated that the progress of death was going on along the tissues in the direction of the cords, the left one being the more marked. The areolar tissue beneath the inflamed tracts rapidly rotted away, so that the finger could readily be passed its full length in the direction of the inguinal canal on either side. The patient's temperature ranged from 101½ to 103 degs., his pulse seldom going below 120, and death was rapidly approaching. Strenuous efforts were made to check the progress of the spreading gangrene, but to no purpose. The necrotic surfaces were frequently and thoroughly dressed with various antiseptic preparations, such as charcoal, quinine and iodoform, after being carefully cleansed with sometimes bichloride solution, sometimes carbolized water, and sometimes a weak solution of bromine. In spite, however, of continuous and faithful attention to the decaying parts as well as careful treatment of the patient's general condition by the exhibition of appropriate internal remedies, the gangrene spread rapidly and the room became so offensive with

the odor of death as to be nauseating to those in attendance upon the case, and the exhibition of Platt's chlorides and other atmospheric disinfectants seemed to be utterly powerless to control the terrible odor.

"After at least two-thirds of the scrotum had been rotted away and the patient's life completely despaired of, it occurred to me to try the efficacy of local feeding as a last resort; the appearance of the granulating surfaces in the few places where they could be observed between the large patches of gangrene upon the surfaces of the testes, pointing to the fact that the tissues were certainly badly starved, they were so pale and anæmic and fragile in their nature.

"Accordingly the man was placed under an anæsthetic. Much of the dead tissue was removed with the aid of tissue forceps and scissors, some of it however clinging so closely to the decaying surfaces as to render the removal of all the patches of gangrene impossible. Iodoform gauze was then soaked in bovinine, each testis was wrapped in a separate strip of it, pieces of it were tucked well up into the groin under the line taken by the rapidly spreading disease, then a large piece of it was wrapped around the entire scrotum and spread over the outer surfaces of the groins. While memory lasts I can never forget the extreme surprise as well as satisfaction at the result of the first treatment. The odor immediately disappeared from the room, the fever of the patient subsided, his pulse lowered, and he was perceptibly better in every way, his restlessness and thirst rapidly disappearing, and he became for the first time comfortable. Bovinine was poured over the surfaces of the gauze once in two hours, but the dressings were not removed for twenty-four hours, although previously they had been changed every two or three hours in order to stay the progress of the disease if possible. When the dressings were removed at the expiration of twenty-four hours, there was no odor whatever to the wound, and although the patches of gangrene were not entirely gone the granulations were of a healthier type. The bovinine dressings were of a healthier type. The bovinine dressings were again applied, this time without the anæsthetic, and were kept in

position this time for forty-eight hours, saturating the gauze every two hours by pouring bovinine over its outer surface as had been previously done. When the dressings were removed the gangrene had almost entirely disappeared, the exposed surfaces had taken on a healthy appearance, and the case was evidently rescued. The bovinine dressings were continued until the case was entirely recovered. So much of the scrotum had sloughed away, however, that as the wound healed it left the testes exposed in two-thirds of their extent."

NEUROTHERAPY.

ANTIKAMNIA.—It is gratifying to note foreign appreciation of American pharmaceutical products of therapeutic merit such as Antikamnia, concerning which *The Edinburgh Medical Journal*, Scotland, says: "In doses of three to ten grains, it appears to act as a speedy and effective antipyretic and analgesic," and *The Medical Annual*, London, Eng; "Our attention was first called to this analgesic by an American physician whom we saw in consultation regarding one of his patients who suffered from locomotor ataxia. He told us that nothing had relieved the lightning pains so well as antikamnia, which at that time was practically unknown in England. We have since used it repeatedly for the purpose of removing pain, with most satisfactory results. The average dose is only five grains, which may be repeated without fear of unpleasant symptoms."

PSYCHIATRY.

THE SKOPTZIES.—The Skoptzies, religious castrators in Russia, are possibly the most famous of the people of this description. The Russian government has condemned members of this heresy to hard labor in Siberia, but has been unable to extinguish the sect. Pelican, Privy Counsel of the government, has exhaustively considered this subject. Articles have appeared in *Le Progrés Médical*, December, 1876, and there is an account in the St. Louis Clinical Record, 1877-78. The name Skoptzy means "the castrated," and they

call themselves the "White Doves." They arose about 1757 from the Khlish or flagellants. Paul I. caused Sseliwanow, the true founder, to return from Siberia, and after seeing him had him confined in an insane asylum. After an interview, Alexander I. transferred him to a hospital. Later the Councillor of State, Jelansky, converted by Sselianow, set the man free, and soon the Skoptzies were all through Russia and even at the Court. The principal argument of these people is the nonconformity of orthodox believers, especially the priests, to the doctrines professed, and they contrast the lax morals of these persons with the chaste lives, the abstinence from liquor, and the continual fasts of the "White Doves." For the purpose of convincing novices of the Scriptural foundation of their rites and belief they are referred to Matthew xix, 12: "and there be eunuchs which have made themselves for the kingdom of Heaven's sake," etc.; and Mark ix., 43-47; Luke xxiii., 29; "blessed are the barren," etc., and others of this nature. As to the operation itself, pain is represented as voluntary martyrdom, and persecution as the struggle of the spirit of darkness with that of light. They got persons to join the order by monetary offers. Another method was to take into service young boys, who soon became lost to society, and lied with effrontery.—From Gould and Pyle's *Curiosities of Medicine.*

AN EXAMPLE OF FATAL PSYCHIC SHOCK.—The importance of the vagus nerve in its relations to the cranial and thoracic viscera is constantly presenting in the phenomena of life. Instantaneous death through its influence is often afforded in sudden mortuary records and every grade and degree of influence present in the chronicles of daily life. A remarkably tragic case of this kind, recalling too the recent Luetgert trial at Chicago, where the plea of sudden disappearance was put in defense, the defendant claiming that murder was not committed, occurred at Gibraltar in 1841. James Baxwell, a respectable merchant there, was charged with the murder of his daughter, Elezia. The girl was missing, and in a cave near her father's house some

of her hair and clothing were found stained with blood. Witnesses testified to hearing the father say angrily that he would rather see her dead than to see her married to a certain man who had asked her for her hand. Wild shrieks, as of a woman in mortal agony, were heard on a certain day by other witnesses issuing from the cave where the clothing was found. And, to clinch the case, nobody had ever seen the girl since that day. Baxwell was convicted and sent to the scaffold. Just as he was about to be launched into eternity the girl's lover, William Katt, cried out to stop the execution, as the girl was still alive. He had married her and kept her in hiding ever since, and had fabricated the evidence in the case, including the cries of mortal pain for the vindictive purpose of hanging her father. The black cap was removed from Baxwell's face, but he was dead. The excitement of the ordeal had killed him.

THE INSANE IN ENGLAND.—In a paper read before the British Medico-Psychological Association, Dr. H. Rayner shows that substantially the same defects exist in the British provision for the insane as is the case in many states of the Union. 1. The defect in the provision of treatment (*Journal of Mental Science*, July, 1897) in the earliest stages of disorder is utter and complete. 2. The defect in dealing with the improved or occupation class is very great indeed. 3. The helpless workhouse class are massed in too great numbers and too much isolated from their friends. 4. The responsibility for treatment is not sufficiently and clearly delegated, where the insane are treated in large masses. 5. The number of medical attendants is too limited.

GERMAN LAW ON INEBRIETY.—The new code, the sixth paragraph, which will come into operation in Germany in 1900, enacts compulsory treatment of habitual drunkards. Among the persons liable to be interdicted, the interdiction involving being placed under a curator, who will be empowered to place the individual anywhere for treatment until discharged from curatorship by the court, inebriates are specifically mentioned. The exact description is, "he who in consequence of inebriety cannot provide for his

affairs, or brings himself or his family into the danger of need, or endangers the safety of others," * * * This measure was first advocated in 1863 at a meeting at Hanover, presided over by Judge Naumann, of Hameln.—*British Med. Journal.*

NEURO-SURGERY.

LUMBAR PUNCTURE.—Thiele (*Deut. med. Woch.*) relates his experience in v. Leyden's clinic as to the value of this procedure, says the *British Medical Journal.* The material includes thirty-two cases with sixty punctures. There was no unpleasant after-effect, and this was chiefly to be ascribed to the fact that the puncture was practiced with the patient on his side, and that only one case of cerebral tumor was thus treated. There were three cases of epidemic meningitis, two of which were fatal. There was no room for doubt as to the diagnosis in these two cases, but in the third case, which recovered, there was considerable difficulty. Here at any rate an earlier diagnosis was made possible. The meningococcus was found in the fluid, and was also cultivated from it. There were seven cases of tuberculous meningitis, all fatal. Lumbar puncture was here often of diagnostic value. Only twice was the tubercle bacillus found, but the fluid presented in general characteristic appearances. It was clear or only slightly opalescent, contained an increased amount of albumen, and was more or less rich in cells. A table is appended giving the details of these cases. In four cases the diagnosis of serous meningitis (Quincke) was made. Here lumbar puncture was useful in the diagnosis. The nature of a case of hemorrhagic pachymeningitis was made certain by this procedure. In the remaining cases lumbar puncture did not assist the diagnosis, and it had no clear therapeutic effect. These cases included apoplexy, cerebral tumor, uremia, cerebral syphilis, etc. In one case there were symptoms of a spastic bulbar palsy, and after death thrombosis of the basilar artery was found. A pressure of two hundred and twenty was present at the commencement of the puncture, and of fifty at the end. The

fluid was clear, and measured forty c. cm. In another case of spastic paralysis in all four extremities, in which the condition of the head made a chronic hydrocephalus probable, six punctures were practiced. From six to twenty c. cm. of clear fluid were drawn off. The spasm appeared to be less, but any permanent improvement was doubtful. In two cases of chlorosis with cerebral symptoms spinal puncture was also practiced. The patients improved, but it could not be said with certainty that the improvement was due to the puncture. The author concludes that spinal puncture is a valuable extension of our means of diagnosis, and that some therapeutic value is probable in cases of serous and sero-purulent meningitis, as well as in the cerebral disturbances of chlorosis.—*Medical Review.*

CLINICAL NEUROLOGY.

NATURE OF THE ALTERATIONS IN THE SPINAL CORD IN TABES.—Darkschewitch (Moscow Congress, *Wien klin. Rundschau*, Dec. 12) considers that the present status of our knowledge conflicts with the assumption that tabes is due to a primary affection of the cord. He attributes it to a preceding affection of the peripheral nervous system of apparently varying character and varying localization. The alterations in the posterior column appears as the consequence of at least two morbid processes, a polyneuritis and a pachymeningitis in the ramification region of the posterior spinal artery. The affection of the lateral ventricles is apparently only the result of a polyneuritis.—*Journal of American Medical Association.*

NEUROPATHOLOGY.

THE MORBID HISTOLOGY OF EPILEPTIC IDIOCY AND EPILEPTIC IMBECILITY.—As a result of histologic studies, Andriezen (*British Medical Journal*) has found in cases of epileptic idiocy and epileptic imbecility, a diffuse sclerosis or overgrowth of the neuroglia fiber cells in the brain substance and a co-extensive change in the nerve cells. The latter

was of two kinds. 1. Defective development (fewness and slenderness) of protoplasmic processes. 2. Increase in amount and diffusion of pigment throughout the cell body, especially its basal part, and a displacement of the nucleus toward the apex of the cell. Later changes were a gradual destruction and atrophy of the nerve-cell processes, consequent on or co-extensive with the further overgrowth of the glia (sclerosis), until whole groups or islands of cells might be so destroyed. There is thus a common pathogenic basis for epileptic idiocy and epileptic imbecility, and for focal epilepsy occurring in the child, namely, anomalies of growth and nutrition impressed upon the growing nerve cell as well as upon the neuroglia cell, and affecting predominantly this or that area of the brain, frequently in territories corresponding to a particular vascular distribution. In cases of epilepsy supervening in adult life, after the brain cells had attained complete development, the changes found were, as regards the nerve cells, only of the second kind. But in addition these very frequently exhibited intranuclear vacuolation of the cortical cells also. The significance of the changes especially associated with the epileptic neurosis (more particularly when occurring congenitally or in early life, and therefore entailing also a more or less obvious degree of mental impairment) is still more striking when it is remembered that in the brains of non-epileptic idiots and imbeciles similar lesions are generally absent, and the convolutionary forms may be, and often are, plump and well formed, though inclined to simplicity of arrangement. These are to be looked on as general arrests of development, not complicated of course with the epileptic neurosis. In the brains of non-epileptic imbeciles, sclerosis and microgyria are both conspicuous by their absence. When the epileptic neurosis is present, however, this process also is present, and the other changes detailed are also present in varying degrees. It is in the combination of these two classes of pathologic changes that lesions are to be found, the surest indication, the seal as it were, of epileptic idiocy or epileptic imbecility in the brain.—*Jour. Am. Med. Assoc.*

NEURO-PHYSIOLOGY.

LESIONS OF THE SPINAL CORD IN CASES OF AMPUTATION OF THE FINGERS.—The necropsy of a recent case has strikingly confirmed the modern assertion that the section of a nerve determines lesions at a distance, in the nerve's originating center. In this case, described and illustrated in the *Presse Méd.*, the lesions in the spinal cord corresponded in every particular and almost exclusively to the innervation of the parts amputated. An interesting feature of the case was that the amputation was congenital. The woman was sixty, and a cancer was located in the cervix uteri.—*Jour. Am. Med. Assoc.*

HAS THE CELLULAR NUCLEUS INDEPENDENT EXISTENCE?—The *Boston Medical and Surgical Journal* notes the interesting presentation and discussion of this subject at the Moscow Congress as follows: A very interesting paper was contributed to the Moscow Congress by Professor Loukianoff, director of the Institute of Experimental Medicine in St. Petersburg, on "Inanition of the Cellular Nucleus." Notwithstanding the great advances made recently in the science of cellular morphology, he called attention to the fact that there still remain important problems awaiting solution, such, for instance, as the conditions of life surrounding the cellular nucleus.

The nucleus is undoubtedly the most important element of the cell, but we know very little as to its functions of nutrition and growth. To investigate certain vital functions of the neucleus, he had made experiments touching upon the changes produced in the nucleus when the organism is placed in a condition of inanition. The results of these experiments tend to prove beyond a doubt that the nucleus is endowed with an independent existence.

Dr. Loudon had investigated the influence of starvation of bacteria (an analogous problem). He found that bacteria subjected to starvation diminish rapidly to fifty per cent. of their former mass. After this period of diminution, a condition of equilibrium is established, when the bacteria show

no changes. In this they differ from the multicellular organism. Along with these experiments, others were conducted on the cellular necleus itself. Whilst investigating the changes produced in the pancreas of the guinea-pigs subjected to starvation, Brunner observed, that while the cell loses ten per cent. of its substance, the loss of the nucleus amounts only to three per cent. We are therefore justified in thinking, that the nucleus suffers less from lack of nutrition than the cellular substance, and although a part of the cell, it does not lose its autonomy. The cell again consists of various elements, the most important of which is the necleolus.

Madame Dovranovitch, experimenting on changes produced in a starving organism, found, that while the cellular tissue lost forty per cent. of its mass, the nucleus lost twenty-five and four-tenths per cent., and the nucleolus forty-three and five-tenths per cent.

Dr. Laraveitch, experimenting in Loukianoff's laboratory on guinea-pigs, found, that while the body in general loses thirty-five per cent., the loss of the nucleus of the hepatic cell is only twenty-five per cent. of its mass. All these experiments go to prove the fact, that while the cell, the nucleous and the nucleolus lead an existence in common, it is nevertheless variable in each.

Loukianoff described his own experiments concerning the change produced in the cell and its nucleus by various forms of starvation. Twenty animals (white mice, as they seem the least influenced by change in food) were subdivided into six groups; some were deprived of both food and drink, three were fed on tallow, three on egg-albumen, three on peptones and three on oats; thus some animals were subjected to absolute starvation, some fed exclusively on fat, others on nitrogenous food, and others on albumen. The experimentation investigated the changes in the longitudinal and transverse diameters of the hepatic cell. The number of these measurements (about 2,000) are sufficient to draw more or less definite conclusions from. The cellular nucleus diminishes from fasting, but this diminution is not

related directly to the changes which take place in the organism.

While suffering as much as the organism from complete starvation, the nucleus presents changes different from those found in the organism in cases of partial starvation, as expressed in the predominance of nitrogrenous, albuminous or fatty food. The biological autonomy of the nucleus is also evidenced from another fact: the one or the other kind of inanition influences the formation of double nuclei, but this division of the nucleus into two parts does not run parallel with the changes of nutrition, as experienced by the nucleus, nor does it have anything in common with the alteration observed in the organism.

All these facts point to an independent existence of the nucleus. Of this existence we know but little, and there is here a little desirable field for careful study and research.

NON-DECUSSATING PYRAMIDS.—Among three interesting cases reported last May to the American Neurological Society by Dr. Philip Zenner, of Cincinnati, is the following: Male, age thirty-three. Chief symptoms: Jacksonian attacks in the left side of the face, paresis of the left arm and leg, left facial paralysis. Tenderness to percussion over left side of skull. Post-mortem, large tumor in left hemisphere pressing upon left central convolutions. The symptoms were on the left side of the body. Sections of the medulla revealed an absence of the crossing of the pyramids.

EDITORIAL.

[*All Unsigned Editorials are Written by the Editor.*]

The Field of the Alienist and Neurologist for 1898.—The ALIENIST AND NEUROLOGIST, now entering the nineteenth year of its history, is an independent journal of advanced and advancing neurology and psychology, neuriatry and psychiatry. It constantly aims at the proper presentation of neurology applied, not only to disease specially involving the nervous system, but to the nervous system as it is involved in disease in general and diseases of the organs and viscera (a very important consideration for the physician), and to neurological considerations in surgery. In short, it is a journal of nervous and mental diseases in particular and a periodical treatise upon the neuriatric aspects of all disease. It is therefore indispensable to the general practitioner, the special practitioner in neurology and the specialist in every department of practical medicine.

It seeks to correctly interrogate and properly interpret the nervous system in all the phenomena of morbid processes and thus to aid the physician whether confined exclusively to the specialties of psychiatry and neuriatry or broadening his efforts to the whole organism. It assists the physician in every condition of disease to treat the whole man and if it may be said to have a medical creed, it is that the patient should be understood in all his neural relations and receive consideration all over, wherever his omnipresent nervous mechanism reaches and influences him, rather than in the location or organ particularly involved and demanding special attention. This, indeed, since the ALIENIST AND NEUROLOGIST was founded has come to be one of the distinctive features of clinical and therapeutic medicine, and the physician or surgeon who takes most complete account of the nervous system in its multiform relations to the patient's disease processes, will have the best results for his intelligent insight and study. The practice of the art preventive and the art restorative, is largely neurological in the best and most successful medical endeavor.

The nervous system is a dominant element in conditions and results. This fact is becoming more and more demonstrable as neuriatry and neuro-physiology advance and the doctor of medicine takes just account of their importance.

Therefore the ALIENIST AND NEUROLOGIST should be on every table, as it it now on so many of the tables, of those who aspire to the highest success in the practice of medicine or to make the best impression before courts and juries where the problems of man diseased, especially in his cerebro-spinal axis, are under judicial investigation.

The Practice of Medicine is a matter of diagnostic and technical skill, knowledge of remedies and judgment, or of experiences, discernment, resources and how to use them. Success or failure is mainly in the individual doctor, plus or minus the patient's full or reluctant acquiescence in the treatment, and favorable or unfavorable conditions within and about the patient, that is, a good or bad constitution and habits of the patient and hygienic or unhygienic environments.

Many matters make the issue, but the judgment, skill and personal mentality or individuality of the physician, all other things being equal, constitute the chief factors in the result, whether it be favorable or otherwise.

To be possessed of the paraphernalia of practice does not make one a physician any more than to own a machine shop makes one a machinist. The surgeon's knife unskillfully used may kill when it ought to have cured. The assassin and the surgeon may wield the same blade. A chest of tools does not make a mechanic nor an electric battery an electrician. A well balanced judgment, a well regulated and resourceful brain, make the physician. You may stuff an incompetent brain with knowledge, that is, crowd his memory with facts and point out a skillful way for it to use them, and yet if that brain lack trained and spontaneous judgment it will fail. A knowledge of military tactics is useful, but it takes a military mind to employ them aright. A great General may even sometimes win a battle with inadequate resources. Strategy is an element of success in all great military movements, but a poor General will meet with defeat with the best resources at command. It is the same with the success or failure of the physician.

There are some good sectarian practitioners in medicine, as compared with some of the regulars in their localities, because their judgments and personnel are better and they handle their limited resources more strategically than those

physicians about them with all the resources of the world's *materia medica* at their command. They look about them, add to their resources from regular medicine, make up their deficiencies in therapeutic resource, and try to equal the best regular practice; while some of the regulars about them are slothful and self-satisfied and not determined to grow, and some of the latter may be deficient in good medical judgment and broad powers of observation.

In every professional calling, given an equal amount of knowledge of that calling, it is judgment chiefly that makes the successful man; judgment to use his professional knowledge aright and to prompt him to seek to enlarge his knowledge and improve in the right use of it with his advancing years and enhanced opportunities for increasing his store of resourceful information in his profession.

Enlighten the People.—The *Texas Medical News* of November last has a timely and proper editorial on the necessity of enlightening the people on medical topics through the secular press and thus counteracting the misleading and designing quacks and fakes, who wrongly mould popular opinion on matters medical to the detriment of the profession's interests and the people's welfare.

The profession has been too derelict in the matter. The little fellows in the profession who could not properly construct a sentence and who are not sufficiently posted in the literature and resources of their profession to write or stand intelligent criticism, get behind the code and say they do not wish to advertise themselves and denounce with an assumed holy horror those who, when called upon by the press, do give the people the true light. The advertising denounced by the code is very properly denounced, as the ordinary resort of empirics and charlatans; it is the laudatory calling attention to special skill in particular diseases after the manner of quacks. But it is the duty of the profession to properly enlighten the public on all health matters without indelicate boasting or undue ostentation, but in a dignified and scientific manner. This is due from the profession to the public, due from it to humanity and the cause of legitimate medicine.

If light fell in the secular press on the public from right sources, certain states in this glorious union would be having legal exceptions in medical practice regulations, made in favor of osteopathy and all the foolish and fatal medicine fads of the day to the chagrin and dishonor of legitimate medicine. "Mostly fools" is what Carlyle would have said of the practical common sense of the medical profession in

regard to the care of its interests. Its numerous societies seldom discuss and agree upon matters of vital interest to medical men as a class and the profession as a body, as other organizations do, and its great code of medical etiquette and morals is distorted by the designing men in the ranks of the profession so as to suppress ambition and darken public counsel, while quacks and charlatans thrive and flourish in the unimpeded glare of pseudo science, criminal misrepresentation and calumny of the medical profession.

The Damage of Daily Drink.—That we may not by our total abstinence friends be misunderstood in one of our editorials in the last issue of the ALIENIST AND NEUROLOGIST, we make by way of addendum, the following remarks on a subject that never loses interest to science and humanity.

If mankind in general knew what advanced pathology teaches the widely observant physician of the effects of daily alcoholic potations on the human organism, the use of alcohol and its principal compounds, natural or artificial, as a habitual daily beverage, would be shunned as a viper is avoided. Daily potations of strong drink persevered in, except in most exceptional moderation, will ultimately undermine the strongest constitutions as insidiously as the wiles of Delilah conquered the mighty Samson. Tri-daily potations of strong drink are stitches in the shroud and nails in the coffin of the drinker, by which the garment of life's span is prematurely finished and the funeral casket that transports us to the end of earth is prematurely ready for us.

Alcohol thus indulged in and not physiologically counteracted by an exceptional organism endowed with unusual power of resistance, makes morbid changes in the brain, its blood vessels, its coverings and its substance, as well as in the heart and other organs of the body. Wine is a physiological mocker and whosoever is deceived thereby is not wise. The morbid changes in the chronically alcoholized brain are well set forth in the recent treatise of Dr. W. Bevin Lewis on mental diseases. "The vessels dipping into the cortex, or outer layers of the brain, from the pia mater (or undercovering of this organ) are of under size, coarse and frequentiy tortuous and their coats are in advanced stages of atheromatous (earthy deposit) and fatty change." "The nuclei of the adventitial sheath are somewhat numerous, are freely proliferating (projecting out) or their protoplasm is in a state of fatty disintegration," or breaking down.

The most prominent feature of chronic alcoholism, however, is the abundant increase of the scavenger cells of the surface of the brain lying immediately beneath its membraneous covering.

Beneath the inner covering of the brain (the pia mater, as it is called, or pia) and pressing into the brain surface, pathologists often find a vast quantity of what they have called Amyloid bodies. Proliferating nuclei appear along the walls of the blood vessels giving them a peculiar spinous appearance. The parivascular spaces, or spaces around the blood-vessels, which carry the lymph-like brain fluid to cushion the vessels, is often found unduly distended with lymphoid elements.

The motor cells of the fifth layer of the brain cortex, or rind of the brain, undergo a fatty change, become degenerate, break down and are absorbed, hence the chronic alcoholic paralysis of old drunkards and the temporary and acute paralysis from the great blood pressure of acute intoxication upon these same centers in the brain. The saying, "he is paralyzed," joculously applied to a man who is very drunk, has more scientific accuracy than was intended by the originator of the expression.

The blood-vessels of the brain are the first to feel the effects of alcoholic intemperance. They become enormously and unequally distended and the brain suffers from blood pressure symptoms. Locomotion, perception and ideation are at first embarrassed and finally permanently impaired or destroyed. "We are struck," says the author previously quoted, "by the large number of extremely coarse dilated vessels which afford us evidence also of grave structural change."

Neither does the spinal cord escape, for throughout its whole extent we find increased vascularity. The change in the vessels of the spinal cord is like that which has long been recognized in chronic Bright's disease, says Bevan Lewis.

"Through the medium of the blood vascular system, alcohol, by its ready absorption and permeability, is rapidly conveyed to the most distant parts of the organism, establishing wide-spread constitutional disturbances; whilst through the peculiar selective capacity of the nervous centres for this poison, it thereupon expends its primary and most potent influence. Although in all cases the nervous centres bear the chief brunt of its attack, it by no means follows that the subjects of chronic alcoholism suffer in the same way. In one, the gastric (stomach); in a second, the hepatic (liver); in a third, the renal (kidneys) and cardiac (heart)

symptoms may come to the front; whilst in others, the nervous centres express the special virulence of the agent in their direction. Undoubtedly a neurotic heritage plays a foremost part in thus predisposing to more exclusive determination of the morbid agency upon the higher nervous centres, just as these subjects predisposed to renal degeneration will, on the establishment of alcoholism, display the usual cardio-vascular (heart and blood-vessels) changes of chronic Bright's disease."

The general effect of alcoholic excess is depravity of nutrition and impairment of the nutritional fluids and functions, the digestion becomes disordered, the excretory functions become deranged and the nerves exhausted or destroyed. The higher centers of the brain break down in delirium tremens, insanity, dementia or paralysis, or lesser degrees of mental impairment—a paresis, or lesser paralysis, of speech or motion and aphasia, or speech forgetfulness, and memory failure in general, sets in and thus science confirms the truth of all observation that wine is a mocker and whosoever is deceived thereby is not wise and to him who tarrieth long thereat or imbibeth oft, its organic consequences are physical ruin and dissolution. This temple of the human soul in which a god might dwell and angels walk about, can by the unwisdom of the alcoholic habit become transformed into a dwelling place of fiends and furies, can by the diseases it engenders be made the dwelling-place of misery and woe of mind and body as the testimony of our advancing civilization with the human wrecks in its dreadful wake, distorted, crippled, dethroned and dead, fearfully prove.

Besides the mental and physical destruction revealed by science in the pathway of alcohol as its immediate effects, she points with pitying finger to woes innumerable in the aftermath of its devastating violence which the hand of municipal and individual charity gathers into the hospitals for the insane, the homes for the feeble-minded, the colonies for epileptics, the alms houses and penitentiaries of the land.

She points the transgressor with warning hand to the mentally and nervously maimed of the children and children's children of the drunkard.

Alas that one should put an enemy in his mouth not only to steal away his own brains but to rob an unerring heritage of that normal mentality which is or should be the inherent right of the innocent and unfit posterity for the battle of life. The testimony of science say: Be cautious! beware! "For in the last it biteth like a serpent." It poisons the blood, the heart, the brain and the nerves. It

distorts, depraves, degenerates the organism. It destroys the delicate mechanism of the mind's display and polutes the fountain source of the soul's manifestation. It burns out the machinery of the mind with fire infernal and where a spark of divinity might dwell it leaves but the cinders and ashes of a once brightly glowing and glorious mentality.

Its poisoned fangs are like unto those of the stealthy adder in the cradle. Through its baleful influences the unborn come into lives of misery, neurotically and mentally maimed, unfitted for normal life and fortunate if they fill graves untimely; while hurt and helpless womanhood mourns and dies in the mists and blasts of the world's tardy awakening to the destructive effects of the drink habit.

Eye Strain in Health and Disease, with special reference to the Amelioration or Cure of Chronic Nervous Derangements Without the Aid of Drugs, by Ambrose L. Ranney, A.M., M.D., is the pretentious title of a late work by an over zealous opthalmo-neurologist, which has been reviewed in our pages, and in which the author has succeeded in losing sight, like our gynæcologist friends of preceding decades, of preneural conditions. It is a psychological peculiarity of the medical enthusiast, when he takes a special theme for his subject, to ignore antecedent and collateral bearings and descant too exclusively in apparent sequences as though they were exclusive consequences to the exclusion of predetermining neural states. Ambrose Ranney proves too much and yet his subject is worthy of considerate attention from all prudent minded neurologists.

American Medico-Psychological Association. —The American Medico-Psychological Association meets in St. Louis, May 10th-13th, 1898. This distinguished body of American Alienists will be given a royal welcome.

The Unadvised Renewal of Prescriptions at the pleasure of patient or on the advice of the pharmacist is a great evil. It wrongs the doctor and the patient; the doctor, by keeping his patients from consulting him, and the patient by keeping the latter from the skilled medical aid he may need. When patients and druggists decide the question of repetition of prescriptions and the doses of same, they become practically doctors and being without the necessary medical education, they often gravely err against the interests and welfare, comfort and recovery of the patient.

Dr. Outten's Book.—Dr. Warren B. Outten, Chief Surgeon of the Missouri Pacific Railway, has written a new book: "Man's Inherited Martyrdom—A Fitful Study of Degeneration." The work is of great interest and is sure of a favorable reception. It will be published as a serial in the *Tri-State Medical Journal and Practitioner*, of St. Louis, beginning with the March issue and continuing until finished.

Medical Expert Testimony.—A paper by Clark Bell, Esq., on the proposed reform in the law of expert testimony in New York State, includes quotations from the remarks of the Hon. John W. Goff on the subject at the last December dinner of the Medico-Legal Society, criticises the present system and certain legal notions, and proposes the following:

Section 1.—When in any civil or criminal proceeding it appears that the testimony of skilled experts may aid in determining any issues of fact, any justice of the court in which such proceeding is pending may upon the application of either party and and after reasonable notice and hearing, appoint one or more skilled experts and make such reasonable examinations and tests in relation to the person, thing or subject matter involved, as either party may request.

Section 2.—Such expert may be examined as a witness at the trial by either party, or at the court, and shall receive for his service and for his attendance at court a reasonable sum, to be fixed by the court and paid by the party making the application and be taxed in his costs if he recover.

Regarding Advertisements in the ALIENIST AND NEUROLOGIST.—Having suggested the value of an ad. in the ALIENIST AND NEUROLOGIST to a proprietary friend we received the following reply:

"Regarding our placing an ad. in 'THE ALIENIST AND NEUROLOGIST' would state that while we have the greatest esteem for your excellent journal, the class of physicians amongst which it circulates are so eminently scientific that they have but little opportunity to use proprietary remedies."

Concerning the above we have to say, that the ALIENIST AND NEUROLOGIST has certainly one of the best and most discriminating list of patrons who know and employ good proprietary medicines and who are so situated at the head of large hospitals and with extensive practices, as to prefer such agencies as facilitate prescribing, and among them are such proprietary preparations of known reliability

and excellence as find place in our pages and to which the reader is referred.

We will not knowingly admit a medicine or appliance to our advertising pages which has no special merit. Proprietary preparations for internal use, besides being of guaranteed purity and accuracy of composition, should possess the virtue of palatability and acceptability to the stomach, and with abbreviated name, save the physician the labor of detail in prescribing, the latter being an important consideration with the busy doctor. The true proprietary medicine man is a real adjunct to the medical man in his arduous work. This again is confirmed by the excellent array of specialties offered to the profession in the advertising pages of the ALIENIST AND NEUROLOGIST, a periodical which has the whole medical profession for its field with subscribers and contributors from Russia and Finland to the tropics and over all intervening territory East and West. We give our friend thanks for the compliment he pays us and the assurances that we can do without his "ad." better than he can do without our pages; but we forbear speaking further.

Dietary Cranks.—Our esteemed and level-headed cotemporary thus discusses a subject of much importance in its neuro-therapeutic aspects, as well as those of dietetics. While there are some excellent features about the Battle Creek Sanitarium's peculiar dietary for certain patients specially prescribed, acting as an "advent" of surprise and rest to certain gormandized gastric mechanisms needing a sort of digestive rest cure, it is about as well adapted to the majority of stomachs belonging to neuratrophics needing extra good nutrition as the second advent doctrines of the managers of that institution are fitted for the soul sustenance of the average Christian.

Dr. Kellogg's dietary is restful, like all the environments of Battle Creek to the over-gorged gourmand, but not very filling. But let Dr. Upson speak. He goes through Drs. Kellogg's and Saulbury's exclusive dietary doctrine like a dose of Epsom:

According to the daily prints Dr. Kellogg, of Battle Creek, Michigan, recently delivered a lecture before a large audience in the Y. M. C. A. Hall of this city. Among other things he is said to have urged abstention from meat as an article of diet on sanitary grounds. The comparative method is especially favorable in the study of fads and crank systems. Saulsbury and Kellogg added together furnish a plentiful

dietary, subtracted the one from the other they reduce themselves to the absurdity of annihilation. Exclusive systems of diet result from the application of observation on disease to the regulation of the body in health. It is only necessary to change the disease which is on view to get an entirely new set of requirements. There is no doubt of the efficacy of raw meat, dry bread, and hot water, exclusively, in the very common acid-dyspeptic states. Plethoric individuals with the irritated kidneys and neuralgic twinges of the uric-acid condition fly with joy to the grains and nuts of Battle Creek. A sect has lately arisen which, if we are informed aright, largely discounts the very moderate restrictions of the two schemes mentioned above. It has evolved a theory which is truly ponderous in the way in which it tramples down the joys of the table. The Ralston Club has solved the mystery of arterio-sclerosis. Their logic is simple. The arteries calcify; the lime-salts cause calcification; all foods except fruits and all natural waters contain limesalts; *ergo:* eat nothing but fruit, drink nothing but distilled water. They apparently assume that with this one mighty brain-throb they have solved the problem of life, and that they have left men no shadow of an excuse for dying under two hundred years of age. The monkey, the nearest of kin to the hairy progenitor of man, is appealed to as a touching instance of plain living (we wish we could add high thinking, but though the apostles of Ralston may believe it they do not expressly say so). The monkey, they tell us, eats only fruits, and never drinks water with his meals. Presumably the reason why he fails of the double century mark in respect of age is because he does not drink distilled water.

The Ralstonites pause in their consideration of the animal kingdom with the monkey. This is unfortunate. The raven, for instance, lives to be one hundred years old. He lives on carrion. The next army of cranks may be encouraged to follow his example.

The fruit-eating craze is possibly the most degenerate of the many recent fads. The fruit-eating and pot-bellied natives of the tropics and their next lower relatives, the apes, are truly inspiring objects of imitation by civilized man; not even their outdoor and arboreal lives save them from the consequences of a meager and irritating regimen. It is truly pitiful to see the army of neurasthenics, dyspeptics, rheumatics, starving their tissues and acidulating their blood at the beck of a few, to put it charitably, hare-brained enthusiasts. It is fair to suppose that a troop of rickety children will later rise up and call them anything

but blessed, a fate from which the ape saves himself by abundant potations of river water.

The fact with regard to fruit is, that although it contains little nourishment it agrees well with many people endowed with a vigorous gastric mucosa and fairly alkaline blood. To them it brings looseness and joy. In many dyspeptic states, it is the first food-stuff to disagree, and to the ill-nourished neurasthenic it is a miserable substitute for the better tissue-builders.

An appeal to the facts of evolution gives little comfort to the cranks of one dietary idea. Primitive man has as hunter and herdsman thriven on an animal dietary. Nuts and fruits have served his turn as well, and encouraged him to the cultivation of the cereals. There is no evidence to show that the people of any nation have become longer-lived or shorter-lived on account of an exclusively vegetable dietary, or that any association of cranks has increased the longevity of its members by any exclusive system whatever.

Breitung's Tympanoscope is a new electric auroscope devised by Dr. Max Breitung, of Coburg, and illustrated and described in *Deutsche Medizinal Zeitung* für den 6 January, 1898.

It promises to be of diagnostic utility not only to our confreres, the aurists, but to psychiatrists and neuriatrists. Through it aural inspection may be similarly serviceable with ophthalmoscopic examination in determining intracranial diagnostic matters. You cannot see through the brain with it, but it reveals the aural mechanism and tympanic conditions better than previous appliances and hence has its added value to the cerebro-diagnostician.

Ernest Hart Dead.—Ernest Hart, editor of the *British Medical Journal*, is dead.

Mr. Hart had been conspicuous for his devotion to social and sanitary progress in London. He established a society for the abatement of smoke, and instituted cheap concerts for the poor.

As chairman of the parliamentary bills committee of the British Medical Association, he took an active part in promoting a better organization of the medical departments of the British army and navy.

Among sanitary investigations he especially inquired into the various epidemics due to the pollution of milk, and devised a series of regulations for safeguarding the milk supply of towns.

After investigating the conditions of the Irish peasantry, in Galway, Donegal and Mayo, he published in the *Fortnightly Review* proposals favoring the creation of a peasant proprietary and for reclaiming waste lands. These were adopted by the government. He was the author of numerous works.

Brain Desuetude.—Speaking at Selkirk on Dec. 8th, 1897, Sir James Crichton-Browne (*The Lancet*) dwelt on the dangers to health involved in indolence and disuse of the brain. The medical profession, he said, adapting itself to the needs of the time, had felt it incumbent upon it during the last decade to insist mainly on the evils of misuse of the brain, on the excessive strain not seldom imposed on it in these days in the fierce struggle of the race to be rich, and more especially on the overpressure imposed on it in the name of education when in an immature state; but they were not less keenly alive to the correlative evils of the disuse of the brain. Elderly persons who gave up business and professional men who laid aside their avocations without having other interests or pursuits to which to turn were in many cases plunged in despondency or hurried into premature dotage. He did not know any surer way of inducing premature mental decay than for a man of active habits to retire and do nothing when just past the zenith of life, and, on the other hand, he did not know any surer way of enjoying a green old age than to keep on working at something till the close. It had been said that one of the rewards of philosophy was length of days, and a striking list might be presented of men distinguished for their intellectual labors which they had never laid aside, who had far exceeded the alloted span of human life. Galileo lived to seventy-eight, Newton to eighty-five, Franklin to eighty-five, Buffon to eighty, Farraday to seventy-six, and Brewster to eighty-four years. Sir James Crichton-Browne drew special attention to the great age generally attained by English judges. They were, he said, men who could never fall into routine, but were called upon, as long as they held office, for mental effort in considering and deciding on the new points and cases which were constantly submitted to them. For the most part, they had at one period of their lives undergone some overstrain in the active practice of an exacting profession, and yet they lived to a ripe old age, and were, he believed—notwithstanding the jokes and jibes of hungry aspirants at the bar—more exempt from dotage than any other class of the community. The sustained

brain-friction in their case kept that organ bright and polished.

These facts, he thought, ought to inspire us with some doubt as to the wisdom of the compulsory retirement and pension *régime* under which we lived. He had known several cases of mental disease induced solely by enforced idleness in men turned out of the public service, and more particularly the army, in conformity with a fixed rule, while still in the prime of life and capable of useful work. On entering the public service a man had to ascend by graduated steps of increasing work and responsibility. Was it not possible to arrange graduated steps of diminishing work and responsibility by which he might descend on leaving it? Much waste and wretchedness might thus be saved. The physiological notion of life was not cruel overpressure at the beginning, penal servitude in the middle, and silly superannuation at the end, but the timely, continuous, orderly, well-balanced exercise of all the functions and faculties with which the being is endowed.

Touch Paralysis.—The *Cleveland Journal of Medicine* calls attention to this new subject in the following abstracts from two other leading medical periodicals, one English, the other American.

In the *British Medical Journal* of September 25th, 1897, Dr. R. T. Williamson of London writes on "Touch Paralysis" or the inability to recognize the nature of objects by tactile sense. This term is of course not applied to cases in which organic tactile anesthesia exists. In all such cases failure to recognize objects placed in the hand is readily explained, this failure depending upon conditions either peripheral or central. There are, however, cases of cerebral disease in which, while tactile sensibility remains unchanged, objects touched or held when the eyes are closed are not recognized. The following are cases of the kind:

A woman aged twenty-six, with syphilitic history, had a number of epileptoid seizures, characterized by numbness and twitching of the left thumb followed by unconsciousness. There was later much headache, with double optic neuritis and other symptoms of cerebral involvement. The hand-grasps were about normal and though all forms of sensation in both hands were undiminished it was found that, with closed eyes, she could form no conception of the nature of objects grasped by the left.

In the second case, a female patient of twenty-seven years with marked cardiac failure (dilated left ventricle),

had suffered from an attack of right-sided hemiplegia of sudden onset, from which she had recovered almost completely, a very slight impairment of hand-grasp remaining. In this case as in the former the touch-sense and all other forms of sensibility remained acute, but a similar disability was observed.

Another instance of this nature is fully reported in the *University Medical Magazine* of October, 1897, by Dr. Charles W. Burr of Philadelphia. The patient aged twenty-four, of neurotic temperament, was, when ten years old, struck violently over the right motor area with an ax-handle, and sustained a simple depressed fracture of the right parietal bone. On the return of consciousness right hemiparesis with hemianesthesia was noted, from which in the course of a few months he made a complete recovery. On putting his left hand in his pocket for the first time after his illness he found that though he distinctly felt the object in his grasp he could not form any idea of what it was. On examination tactile and other forms of sensibility were normal on both sides, but on the left side, while feeling a touch as acutely as on the other he failed to localize it. The position of the left arm and hand could always be rightly judged with closed eyes, showing that "muscle-sense" was unimpaired.

We have observed similar cases but considering them a variety of tactile anaesthesia did not specially note. We think them worthy of special record. There are more of them to be found and they seem to show how varied are the differentiations of neural function shown by disease beyond the power of the laboratory to demonstrate.

Substitution and Renewals of Prescriptions.—Substitution in prescriptions is the basest of crimes, whether the prescription be a proprietary medicine or an extemporized compound. Proprietary medicines are often specifically prescribed because of the assured excellence of their formulae or the superior and certain quality of their ingredients and when ordered by the physician the law should place the unscrupulous substitutor on the same plane as the capital criminal whose liberty or life is forfeited for his crime, because a substituted drug may destroy life by permitting disease to go on which the true prescription might have saved. The druggist is not a doctor and can not take the place of the doctor by substituting something he may think just as good. The law should make it exceedingly unhealthy for him to attempt such a perfidious practice. The same is

true of unauthorized renewals of the doctor's prescriptions. When unauthorized repetitions are made the pharmacist and the patient become, for the nonce, medical men and, not having educated medical judgments, make mistakes, of course, that make misery and fatality often times, in lieu of extending relief. The physician alone is the proper judge of the quantity and duration of his treatment. The prescribing druggist who refills prescriptions robs the profession of its exclusive rights in this regard and the patient of his deserts.

A Medical Man in the Cabinet.—The sanitary welfare of the people demands a national bureau of public health with a physician as its chief in the President's Cabinet. Sanitation is the salvation of a nation. Health in peace as in war makes enterprise and prosperity possible to a people. Moral degeneracy follows physical, in a people. Hereditary physique and morals go together. Cæsar and Napoleon worked wonders with the world; Napoleon and Cæsar, epileptic, failed, and Napoleon's change of character followed his "epileptic change." Russia's unjust fame as the most tyrannous of nations came from the excesses of the mad filiacide monarch Ivan, The Terrible. A mad English monarch, George the Third, made two peoples out of one which the coming centuries must tell how much is weal and how much woe for the Anglo-Saxon race.

The evil to nations from neuropathic degeneracy revealed to us in the historic past in the lives of Nero hereditarily tainted with epilepsy and insanity, the acquired degeneracy of Commodus and Heliogabalus warn us in the woe and misery of their subjects against indifference to sanitary states of mind in absolute rules and teach us the lesson that when the people make the rulers from among themselves, they should be first mindful of the health of the people from whom the ruler, the legislator, the judiciary and the army and navy, are selected.

Healthy people make and execute whole laws and promote happiness and prosperity.

The Psychical Salvage and the Sin of Suicide.—A clergyman's influence depends much on his conformity in argument to the Christian precept of charity. But certain cleric critics have in unchristian spirit hurled harsh epithets at us. They have called us "pagan and worse than pagan" and classed us with Ingersoll whose agnostic iconoclasm and crippled logic concerning things sacred, we do not in the main approve. Neither do we approve his defense of suicide in general as a virtue. Suicide is often a sin.

Viewing suicide in its scientific aspects and noting its effects on mankind, is a different thing from discussing it as a vice or virtue. Abstractly speaking there is seldom virtue in it on the part of the individual, because better resources and nobler remedies might be found in most instances. The moral merits or demerits of suicide belong to another sphere of work and another cloth than ours. But from all that we have observed in our field of research, we have learned that the world is better off in certain instances for a certain sort of men having been removed from earth either by their own or others' effort; we have seen such instances and whatever you may think of the right or wrong, the crime or virtue, of suicide, so have you, gentle reader.

The International Medical Congress at Moscow.—Dr. A. Rovinsky, writing to the *Boston Medical and Surgical Journal*, says: Whatever the results, practical and otherwise, of the International Medical Congress recently held at Moscow, it is as yet too premature to judge; one thing, however, is certain; it has uncovered a *terra incognita* before the eyes of the scientific world; it has shown that the "Barbarians of the North" have progressed in medical and allied sciences by gigantic strides to a position not very far from that occupied by the other European nations. The Russian has proved himself to be not only an apt pupil, but also a careful and conscientious independent investigator. The difficulties of the Russian tongue have served as a great obstacle in the way of introducing the world of science to the vast accumulation of scientific labor and original research, of which the Congresses caught but a glimpse from the papers read by the Russians and from visiting the medical institutions of Moscow and other cities. There are fields of labor—as that of the so-called "zemstvo" physicians—which are peculiarly adapted to the canditions of life in Russia, and which cannot possibly be comprehended, and therefore appreciated by a foreigner: in these an enormous amount of work is done by thousands of quiet, unobtrusive practitioners, especially in the line of public hygiene, of which there is a truly lamentable lack in a great many parts of the empire, and which, in view of the ignorance of the population, it takes more than ordinary courage to establish.

As far as can be judged, the Congress—with the exception of some inevitable occurrences of an unpleasant nature—turned out to be a success. The great number of physicians, among whom shone not a few stars of the first magnitude, the abundance of papers presented, and the

importance of the subjects discussed—all prove conclusively that the medical world has accepted the invitation of Russia to the Congress most willingly; although it is not to be denied, that curiosity to see the "Russian bear" in his lair prompted not a few in responding to the call. What they saw in Moscow (or to be more explicit, what was shown to them of Moscow) was certainly a pleasant disappointment. I understand that the Executive Committee of the Convention, notwithstanning a great many obstacles in their way (of which the foreigners need not necessarily be cognizant) have discharged their duties to the satisfaction of all, and it was certainly due partly to their efforts that the great numbers of foreigners left Moscow with a greater, so to say, scientific baggage, than they brought with them. Add to this the proverbial Russian hospitality, that seemed to even excel itself on the occasion, the unique features of Moscow —with its Kremlin, on one side, reminding one of some Asiatic city; and its hospitals, libraries, scientific collections, its great university, on the other hand—and you will readily perceive that the impression left on the minds of the foreigners by Russia and its representative scientists will be lasting and favorable. When the impressionable nature of the Russian and his almost fanatical love for science (a trait of character readily noticed by the keen Virchow) no one can foretell what a powerful impetus in the direction of scientific investigation the Congress has given to Russian science. At the same time nothing could so elevate the standing of Russian culture beyond the confines of the empire.

Not by any means the last party to profit by the "feast of science" is the Russian government. Constantly holding in check the embryonic public opinion of the land, the Russian government has always striven to create for itself a favorable public opinion in Europe (the utility of such a policy does not concern us here), sometimes at the expense of a great deal of energy, as by subsidizing certain parts of the press in Europe, keeping a whole system of spies, etc. It requires no fertile mind to comprehend, that having taken a most active participation in the preparations for the Congress, and having extended unbounded hospitality to the foreigners (for if the Russian government *does* do things, it does not do them by halves), the Czar himself taking an almost direct interest in the proceedings, the government has won over to its side hundreds of intelligent staunch supporters, who will carry with them pleasant remembrances into all the corners of the habitable globe. This is by no means of *small importance*. We all remember

the flutter of excitement and the adverse criticism toward the Russian liberals, created by the sensational reports of Rev. DeWitt Talmage's visit to St. Petersburg and his interview with the Czar, who not only allowed him to enter his most august presence, but actually permitted him to taste of his cuisine and to pat his children!

As if to strengthen the political *mésalliance* between France and Russia, the next Medical Congress has chosen Paris as its place of meeting. But strange to say, as compared with the Germans, both quantitatively and qualitatively, the French were insufficiently represented in Moscow. Besides, the Methodical Germans had their committees all prearranged long before the opening of the Congress, the Frenchmen were rather slow in doing so; hence, very probably, the great difference in the respective representations.

Of the many famous men present no two attracted as much attention as the great master Rudolf Virchow and the founder of the modern school of criminology, Cesare Lombroso. The venerable old teacher, who counted among those present many a gray-haired pupil (Virchow is seventy-six years old) of his, called out quite a pathetic protest, when he intimated in his opening speech that this may be the last medical congress he is able to attend. Of his several addresses that in the Section of General Pathology on the "Role of the Vessels and of the Parenchyma in Inflammation," seems to be the most notable one.

A deputation from the women physicians of Russia thanked him for his efforts in behalf of the medical education of women; in 1893, when the women were not admitted to the University, Professor Virchow was the first to open his lecture-rooms and laboratories to them. In reply he said, that the woman brings into her scientific work an idealism and the purity of her soul. He also expressed his delight at the opening of the medical school for women in St. Petersburg.

Prof. C. Lombroso, whose appearance was hailed with delight, as he has quite a number of appreciative admirers among the Russians, delivered, among others, a notable address on the "Latest Requisitions of Psychiatry." An unassuming servant to medicine, psychiatry has invaded so many departments of knowledge, that no other branch of science can be compared to it. She has given a new and more perfect classification of hysteria, she has elucidated many points regarding epilepsy, revealed the etiology of pellagra, alcoholism, egotism, discovered a whole series of degenerative processes in cretinism, goitre and

myxedema, at the same time giving us means to either foresee or to cure these degenerations. She has explained the nature of the phenomena of epidemic fanaticism. She has succeeded in proving that a great many of the so-called criminals are in reality sick men who, instead of being punished, must be subjected to medical treatment. Guided by clinical experimentalism, the progressive alienists came to the conclusion that they must study rather the patient than the disease, that they must find in the patient's physical and functional disturbances as much as they look for in psychical alterations. Fortified by their first successful efforts the alienists continued in the same direction, hoping to discover certain characteristic traits, that would aid them in distinguishing the sane from the insane. Without as yet finding these, they nevertheless established a new method of investigation in the domains of psychiatry and crime. They have concluded, that against the *a priori* investigation of the crime, we must put the direct analytical examination of the criminal himself, and of the conditions of life surrounding him; guided by this idea, our system of punishment must be such as to act rather less severely, but the law must strive to set aside the conditions creating the criminal.

In the domain of psychology she has first of all shown the parallelism between the phenomena of ideation so far beyond and above our control, on the one hand, and the phenomena of perception, so easily verified, on the other hand. We all know the perseverance of very strong and very prolonged impressions, that are left even after the subject causing them, has disappeared. This law of perseverance is found to be uppermost in the mental sphere of the insane; thus one patient who became insane because of fright caused by an explosion of powder, continued to imagine himself in the midst of flames. Such and a great many other facts assist us in comprehending the mechanism of thinking. In the cortical strata of the brain in which thought is formed there takes place a movement, analogous to that said by the physiologists to take place in the end-fibres of the sensory nerves.

Psychiatry thus leads us further than pathological anatomy. Thought presents in reality the diminished image of the subject, an image called out by sensation. But while in the condition of waking, thanks to the predominance of brighter perceptions, this image is so pale, that we are unable to determine its nature. Only when these perception phenomena disappear, as in sleep, in the hallucination of the monomaniac or of the hypnotized subject,

does the idea become what it was, that is, an image. But it is while studying hypnotism and hysteria, that the secrets of psychical phenomena are revealed to us, because knowledge of these mental conditions enables us to understand the secret with the aid of experimental investigation. Facts prove that thought is connected with the law of molecular motion of the cortical brain matter.

Professor Lombroso paid a flying visit to Count Leo Tolstoi, whom he considers one of the greatest minds of the century, and does not at all agree with Dr. M. Nordau in classing him among the great degenerates. Unfortunately, one of the count's sons was just then passing through a severe typhoid, and the doctor's stay had to be shortened.

In the Section of Gynecology and Obstetrics, Professor Sneguireff, of Moscow, delivered the Chairman's Address, in the course of which he pointed to the picture of Raphael's Sistine Madonna as a perfect type of healthy and beautiful womanhood, for which science and art must strive. "Take care that the cradle of humanity is healthy, because health is beauty, beauty is truth, and truth is happiness. The peace of the future and happiness on earth consist in the knowledge of preserving one's strength, given by nature, and in developing the harmony founded on mutual love and respect. Not only may the woman enjoy the rights that we enjoy, but she must have more rights and less duties."

By the number of important papers under discussion the Section on Hygiene was one of the most interesting. Prof. V. Vaughan, of Ann Arbor, Mich., read a very able paper on the examination of drinking-water, and Professor Novy, of the same University, on the necessity of instruction in the elementary schools in the measures for combating infectious diseases. To organize the work of public hygiene, Dr. Burgertern recommmends in his paper the systematic spreading of popularly written treatises on the subject by the aid of some official method; the instruction in hygiene by competent teachers in all the schools of the land; the establishment of chairs to institutes of hygiene in connection with every medical school so as to prepare a sufficient number of specialists in public hygiene; a special sum to be designated by the central government for the purpose of instructing the people in hygiene.

Among other addresses in the same Section was one on "Alcoholism in its Relation to Public Hygiene." Dr. Grigorjeff, of St. Petersburg, brought forward some interesting statistics concerning the State monopoly of the sale of alcohol in Russia; in general it has tended to diminish the

evil. Dr. Yarosheffsky, of Samara, discussed the special hospitals for alcoholics. He and Dr. Korovin have among other things called the attention of those present to the fact, that among those battling against the great evil in the civilized communities, the physicians are not to be found; although they could do much more than the various prohibition societies, whose utility is after all a matter of fiction rather than of reality; alcoholism is to be considered as a sort of an epidemic disease and treated accordingly.

A most brilliant address was delivered by the famous neuro-pathologist, Krafft-Ebbing, on the "Etiology of Progressive Paralysis." It was a skilful analysis of the condition of modern civilized life, done by the hand of a master. He pointed out that the modern man has paid dearly for the great progress in trade, manufacture, agriculture and for the innumerable inventions. The intensity of the modern life is still more enhanced by the political activity, the great diversity of opinions, the struggle for existence, not only among individuals, but among classes and nations; the nervous system is thus in a condition of never-ceasing excitation, increased by the abuse of the various nervines, as tobacco, tea, coffee, alcohol. The physical degeneration of the great masses of people segregated in the large manufacturing centres is the true reflection of their miserable conditions of life, and appears as rachitis, scrofulosis, tuberculosis, etc. The female is not surrounded by any more favorable circumstances. Such conditions form certainly a very fertile soil for the development of various nervous disorders, among which progressive paralysis occupies a preeminent place. The ever spreading curse of syphilis is probably the most important etiological factor in the causation of the disease; he would, however, not commit himself to considering syphilis as a *sine qua non* in the etiology of progressive paralysis. If he were to state the etiological factors of the disease he would say: "civilization and syphilization."

Another hardly less interesting and important address was that by Prof. I. Metchnikoff on "The Plague." The interest in the paper was heightened by the fact, that the author applied the comparatively new method of serum-therapy in the treatment of the disease, which up to lately was considered only as a subject of historical interest and not of medical importance; but its recent appearance in India and in Hong Kong has attracted the attention of the scientific world. Recent investigation of the plague has enabled us to diagnosticate the disease early and to check its spread in time, and so perfected has the method become

that even a student is now able to diagnosticate a case of the plague.

The Pope's Physician.—Battle & Co. claim that he commends and uses Bromidia. They send us the following very flattering excerpt:

"I have given your Bromidia with success as a remedy for Insomnia, especially where produced by excessive study or mental work." DR. LUIGI SALUCCI,
Physician to the Holy Apostolic Palaces,
The Vatican, Rome.

September 1, 1897.

Battle & Co. with reference to the above, say:

"We enclose you an article which evidently comes from *The Pope's Physician.* We hope you will give it a good place somewhere in your journal. It is short and if you could place it on the bottom of some regular reading page we would take it as a great favor."

Now if Battle & Co. can secure the Pope's benediction on Bromidia, we will take a dose ourselves to attest our faith in drugs.

Coming Round.—A paper read before the American Association of Obstetricians and Gynecologists concludes that in oöphorectomy "a portion of healthy ovary should be allowed to remain whenever possible." Thanks! For when "Ginnycology" passes into the hands of the lady "ginnycologists" and they extend their field to testectomy, we may be able to point with "saving grace" to this precedent for the salvation of our own orchids, when orchotomy shall become the surgical therapeutics, in the hands of the gentler sex medical, for orchitis, orchalgia, lumbago, sciatica, facial neuralgia and all mascular vagaries, morbid impulsions and ailments of man's cerebro-spinal and ganglionic and peripheral nervous systems, in short, when, with orchectomy in one hand, ovarectomy in the other, surgical therapy shall be directed by our long suffering and vengeful sisters in the profession. Dr. B. Sherwood Dunn, Neurology and all masculinity thank you for your plea for a little of the healthy ovary to be left in the pelvis. It may yet be the salvation of the imperilled testes, trembling below the belt, just on the outside of the fatal precincts of normal oöphorectomy.

In the January North American Review, Prof. Cesare Lombroso tells "Why Homicide Has Increased in the United States." He suggests the establishment of colonies

for the incorrigible, the multiplication of reformatories modeled after the Elmira institution, and the rigorous combating of the saloon influence.

The Degradation of Military Medical Men both in the British and American armies and navies should be resented by the profession of both countries. What is an army's efficiency without proper sanitation and provision against preventable and for curable ills and for the many medical and surgical emergencies of the service? and what spirited medical man will forego the opportunities of honor and advance in rank of the other departments to take a degraded place on the medical staff, to be spurned and outranked by epauletted subordinates and subalterns as mere servile attendants?

The average educated and well-trained medical man in these days of high scientific requirements is the peer of most, and the superior of many, army officers in knowledge of the essentials of an army's welfare. The medical director is, or should be, in value in a campaign next to the commanding officer of an army corps, and the same relative value extends down to the brigade or batallion. The medical staff may save from or consign an army corps to disaster; may permit or prevent pestilance; may select or fail to select sanitary supplies, equipment or encampments; may burden a marching army with or release it of invalids; may anticipate or neglect, remove or overlook, sanitary difficulties that stand in the way of victory. If anywhere brains and knowledge, ambition and skill, should be encouraged, it is in the medical corps of the army. These qualities and incentives to the most efficient service are as essential as with the artillery, the maneuvers of the cavalry or the management of the infantry. The engineer corps should not outrank the medical.

The efficiency of the medical department should be looked to with more zeal and more solicitude on the part of field officers and men than even the commissary or quartermaster's departments, for well men can forage for themselves and will not ordinarily suffer for clothing if they are started out right on a campaign.

Napoleon's Waterloo began at Moscow and Sadona. If he could have kept his army well on that fatal march he might have mastered the world. More and better medical management of that fatal invasion might have made the maneuvers of retreat less imperative and disastrous. If Napoleon's own health had been better cared for after that

retreat he might not have failed or risked his fate at Waterloo.

In this connection we are pleased to note that the profession of Great Britain is protesting against the contemptible manner in which medical officers of the British army are treated by their brother officers.

Army medical men must have adequate rank, respect and promotion, else men who are the most capable and who could fill any place in the service with ability and honor, will ignore the medical department to the great loss of military efficiency. High minded men make an army, as they make a state, in every department of its service.

The Last Slap at the Expert Witness.—*The Chicago Medical Recorder* says: Experts are having a hard time now. Some can get no pay for their testimony, others are accused of ignorance, and others again of venality, but it was reserved for a St. Louis judge to recognize a "professor" of phrenology as an expert in insanity. He testified that the defendant in a murder trial was insane, and, upon being questioned as to the reasons for his conclusion, said that his opinion was based solely upon a phrenological examination made by passing his hands over the man's head.

Medico-Psychological Association Announcement.—At a meeting of the Committee of Arrangements in St. Louis, Mo., on January 12th, 1898, it was decided that the 54th Annual Meeting of the American Medico-Psychological Association will be held at the Southern Hotel. Said Association will convene May 10th, 1898, and will continue May 11th, 12th and 13th. The aforesaid Hotel has agreed to give a discount of 50 cents per day on all rooms of $3.50 and upwards, and to all ladies accompanying members a rate of $2.50 per day in any room regardless of the regular rate.

The Committee has under advisement the social features of the meeting to be announced later. Any information desired will be cheerfully furnished by the Chairman of said Committee, Dr. C. R. Woodson, Superintendent State Lunatic Asylum No. 2, St. Joseph, Mo.

You are cordially solicited to attend with lady members of your family and contribute to the success of the coming meeting.

We would suggest that you communicate directly with

the Southern Hotel for the accommodations desired and it will insure rooms in readiness upon your arrival.

Respectfully,

C. R. WOODSON, Chairman,
C. B. BURR,
J. F. ROBINSON,
J. T. COOMBS,
C. H. HUGHES,
E. C. RUNGE,

Committee.

NOTES.

☞No commission allowed agents or dealers on renewal subscriptions.☜

Sousa's Debut was as a violinist before an audience of insane people and attendants at the "St. Elizabeth," the United States Government Hospital for the Insane at Washington City. His age was then eleven years.

Dr. E. L. Mellus, pathologist to the Westborough, Mass., hospital, resigned last September to accept a similar position at the Johns Hopkins Hospital at Baltimore. The Westborough Hospital has begun making an examination of the blood of each patient admitted, with a view to tabulation of results. Some interesting phenomena have already been observed, which, if verified later, will be given to the public.

New Medical Journal.—In January, 1898, the Philadelphia Publishing Company, incorporated under the laws of Pennsylvania, began the publication of a weekly medical journal, called *The Philadelaphia Medical Journal.* The company has a capital of $30,000, in shares of $10 par value, full paid and non-assessable. The management of the company is entrusted to a board of trustees, in which are representatives of leading medical schools. The editorial management has been entrusted to Dr. George M. Gould. The price of subscription is $3 per annum.

Psychiatry and Neuriatry in France.—Among other subjects the coming French Congress of Alienists and Neurologists will next year discuss psychic disturbances following operations, arteritis in neuro-pathology, and mania transitoria in its neural and medico-legal aspects.

Eleventh International Congress of Hygiene and Demography will convene at Madrid, April tenth, proximo, and remain in session till the close of April seventeen. Following is the announcement of the secretary general. We wish this important assembly the success it so richly merits.

Neuviéme Congrés international d'Hygiéne et de Démographie dont la célébration aura lieu á Madrid du 10 au 17 Avril 1898, sous le patronage de S. M. le Roi Alfonse XIII et de S. M. la Reine Régente.

Dans la séanee de cloture du VIII Congrès, célébré a Budapest (1894), a ville de Madrid fut designée comme lieu de réunion du Congrès suivant.

Le Gouvernement de S. M. se propose de remplir dignement l'engagement alors contracté. Le Patronat Royal lui donne son auguste protection; et le bon vouloir, dont se trouvent animés quiconques s'occupent en Espagne de l'interessante étude de l'Hygiène et de la Démographie, en assure le succès. Les travaux de propagande et d'organisation, a la charge d'un Comite général presidé par Son Excellence M. le Ministre de l'Interieur, sont très avancés. Les Programmes et Reglements du Congres et de l'Exposition y annexée, déja imprimés en quatre langues, commencent a circuler et se distribuent partout; a liste des fêtes, receptions et excursions scientifiques ou expansives, est en preparation; les dispositions nécessaires a effectuer dans le Palais de l'Industrie et des Arts, cédé par le Ministre de Fomento (Agriculture, Commerce et Travaux publics) comme local, ou doivent avoir lieu, la célébration des séances du Congrès, ainsi que l'installation de l'Exposition-annexée, sont également a l'étude; on prévoit, en fin, la présence en Espagne de gran nombre de personnalités étrangeres, distinguées dans les sciences, et tout porte a croire que la réussite de la réunion du IX Congres International d'Hygiene et de Démographie ne restera pas au dessous des succes précedents.

Le Congres et l'Exposition auront lieu du 10 au 17 Avril de l'année prochaine 1898.

Veuillez me permettre M. au nom du Comité général de Propagande et d'Organisation de vous prier de contribuer a lui donner gain de cause, tout en daignant accepter son invitation.

Madrid 10 Juin 1897. Le Secrétaire général,
DR. AMALIO GIMENO.

Hospital Construction, etc.—The February, 1898, issue of the *Albany Medical Annals* will be an extra number

upon subjects pertaining to hospitals—their construction and administration, including the following articles appropriately illustrated:

"A Description of Hospital Buildings on the Pavilion Plan," by Albert Van der Veer, M. D., Attending Surgeon, Albany Hospital; "The Construction of Hospitals;" by P. M. Wise, M. D., President N. Y. State Commission in Lunacy; "The Warming and Ventilation of Hospitals," by Fred P. Smith, Heating Engineer for N. Y. State Architect and Capitol Commissioners, Albany, N. Y.; "The Plumbing of Hospitals," by Wm. Paul Gerhard, C. E., Consulting Engineer for Sanitary Works, New York; "Hospital Equipment," by C. Irving Fisher, M. D., Superintendent, The Presbyterian Hospital, New York; "The Medical Service of Hospitals," by Henry M. Hurd, M. D., Medical Superintendent, The Johns Hopkins Hospital, Baltimore,—all written by well-known men of expert experience on the subjects treated. A variety of practical topics of interest to all engaged in the management of hospitals, also not elsewhere to be found, will be presented in this number, The price of this number of the *Annals* to non-subscribers will be twenty-five cents, post-paid. All orders should be addressed, Albany Medical Annals, Albany, N. Y.

Insanity in Pennsylvania.—The number of insane in all classes of institutions in Pennsylvania on September 30th, 1886, was 9,473.

The National Pure Food Congress, to assemble in Washington, D. C., March tenth, should be heartily encouraged by the profession, commonwealths and people. Its success means health and life to thousands and death to dangerous drug and drink adulteration, dastardly deception in foods and commercial rottenness. The beginning of the end is coming to a nation when it long permits this method of insidious assassination of body and morals to continue. Save America from this secret foe of health, business honesty and commercial rectitude.

REVIEWS, BOOK NOTICES, ETC.

HUGH WYNNE, Free Quaker,* is a literary character story and revolutionary historical novel of high rank by a man of eminence in medicine, whose merits as a writer are only equaled by his well-earned fame as a physician. It may be said of this last and best production of our talented author and colleague in neurological medicine, as was facetiously said of friend Hammond, author of "Robert Severne," etc., etc., "he writes fiction well."

Every physician should read "Hugh Wynne" for the just tribute the author pays to the skill and virtue of that patriot statesman physician, the great Rush, with his delicate clean cut face under a full wig, to whose great professional skill and high civic virtue, the author has erected an imperishable memorial in which, however, appears no line of fiction. Every patriot will enjoy this book for its historic records of daring, suffering devotion to duty of our patriotic sires of '76 and for the light it especially throws on the field and camp character of Washington and other patriots of his time; on the causes of Arnold's downfall; on the home and political life of the followers of Penn, and for its historic data.

The book which has reached its thirty-six thousandth edition will also find a welcome place, not only in the hearts of every descendant of those patriot sires who mingled in the fray when souls were tried and an invincible nation was born to freedom, but descendants of both Whig and Tory will read it with true Anglo-Saxon pride. The sorrowful glory of that dreadful camp-ground, Valley Forge, of Lexington, the fateful Brandywine, the historic records of "Williams, Marion and Morgan," "the thrashing Torleton got at Cowpens" and "of the fight at Guilford," Greene, losing fights and winning strategic victories "probably more by luck than genius," the boy Lafayette, the Comte de Rochambau and the Duc de Lauzan, De Grass and Duponceau "much overworked," and so many other fields and events of the time of America's conception and natal throes, are so well told that the student of American history must needs possess himself of the book for its merits of style and fact and for its moral, political and personal character lessons.

The story of Arnold's treason and the noble Andre's capture are neatly woven into the romance of Hugh Wynne and Darthea.

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*By S. Weir Mitchell, M.D., LL.D., Philadelphia. Century Co., Publishers, New York.

The psychology of the book is in the main as near up to date as the author could make it without anachronism. The failure of the elder Wynne's mind is attributed to his "arteries being older than his body," words put in the mouth of that pioneer American Alienist, Dr. Rush. "Our great physician of the Revolution," whom now all the world has learned to revere, not only told Hugh that his father was beginning to have some failure of brain because of his arteries being older than the rest of him (atheroma) but told him also that his father's mental condition as to business, "as was in such conditions rare, continued to be lucid." The opinion here expressed is somewhat at variance from present psychiatric observation. The occupation faculties whose action has become automatic by long repetition are ordinarily the last to fail in process of mental decadence, save that of the memory of names. I have seen insane lawyers plead well and lunatic physicians prescribe properly, mechanics handle their tools with skill, and farmers the plow, musicians play and artists paint, when too insane to do anything else correctly, save perhaps to eat and perform the daily ablutions of the toilet, etc., under suggestion from a sane attendant. But the psychiatry and psychology of the Revolution were not the psychiatry or psychology of to-day.

The book ends, as so many novels do, with the marriage of the hero, Hugh Wynne, and heroine, Darthea Paniston, and their passing from further notice. Cousin Arthur Wynne is disposed of rather summarily and the title to the estate of Wynsote, in Wales, "goes up in smoke," so far as Hugh's vested rights are concerned, through a woman's passionate impulse, Darthea having cast the deed into the fire.

May we expect a sequel to Hugh Wynne?

STUDIES IN THE PSYCHOLOGY OF SEX. Vol. I., SEXUAL INVERSION. By Havelock Ellis. *The University Press*, Watford, London.

This is a subject, disagreeable and revolting as are some of its details to certain delicate sensibilities, which the student of psychology—normal and morbid—cannot ignore, any more than the study of repulsive disease or the duty of dissection can be avoided. It is for the welfare of his fellow-man that the medical observer looks into the subject of homo-sexuality, finding some of its features pitiable, others abhorent, and all demanding cold, calm and careful consideration with a view to such medical resource as may be revealed by his study in medical, moral or statutory remedy. In this spirit the author has approached and completed the study of his subject and given to the profession of perversion, that calls for professional and public consideration and action.

The author's analysis of sexual inversion leads him to the conclusion that "the average invert, moving in ordinary society, * * * is most usually a person of average general health, though very frequently with hereditary relationships that are markedly neurotic, the subject of a congenital predisposing abnormality," and that three influences bring into action the latent predisposition—example at school, seduction, disappointment in normal love.

"In this volume," the author asserts that he is not dealing with a subject belonging to the lunatic asylum or prison, but "with individuals

who live in freedom, some of them suffering intensely from their abnormal organization, but otherwise ordinary members of insanity," yet there are perverts who are insane and there is insanity that develops sexual perversion. But to fully comprehend the author you should read his book. If you are a psychologist you will need to consult it; if you are a psychiatrist, it will enlighten you; if you are a moralist, it will astonish you in the fact that persons of pure, as well as impure, morals, criminal and non-criminal, sane and non-insane, may be ranked among the author's cases.

EMMAUS, Asylum for Epileptics and Idiots at Marthasville, Warren county, Mo., Rev. C. F. Sturm, Superintendent; and at St. Charles, Mo., Rev. J. D. Illg, Superintendent. Board of Directors—L. Haeberle, President, H. F. Knippenberg, Treasurer, G. Niebuhr, Secretary, H. Telgemeier, W. Meier, S. Kruse, G. Goebel. Fr. Reichmann, Louis Peters. Physicians—Dr. E. A. Rembe, Physician in Charge, Augusta, Mo.; Dr. W. J. Alexander, C. M., Consulting Physician, Marthasville, Mo.

The existence of this worthy institution of charity towards these unfortunates is a rebuke to the commonwealth which has so long neglected to provide for its epileptics, idiots and feeble-minded. We wish it the success and support it deserves, and hope that the state will ultimately buy this property or make suitable provision elsewhere for these helpless ones who are so worthy of the state care and consideration.

RUBAIYAT OF DOC SIFERS is, in fact, what the Persian word implies—a crown of roses lovingly placed, by the poet, James Whitcomb Riley, on the brow of the old village doctor of days agone, showing in common vernacular, shaped in rhyme, the appreciation by these common people of the fidelity, the faith, wisdom, and duty well done to humanity's call, of the old-time village doctor whose like we shall never see again. For he has passed away, while in his stead reigns another type, yet none the less sincere and devoted, a soldier to the call of duty.

Stories like this of "doc Sifers" are memorial of the merit and virtue of medical men which keep in remembrance better than bronze or marble. The poem will find a place in the American heart along with Longfellow's Village Blacksmith and Will Carleton's Country Doctor. The Century Co., New York, are the publishers.

AN EPITOME OF THE HISTORY OF MEDICINE. By Russell Park, A.M., M.D., Professor of Surgery in the Medical Department of the University of Buffalo, etc. Illustrated with Portraits and other Engravings. One Volume, Royal Octavo, pages xiv-348, Extra Cloth, Beveled Edges, $2.00 net. The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street, Philadelphia; 117 W. Forty-Second Street, New York; 9 Lakeside Building, Chicago.

This is the best book on the subject that has been offered to the American medical profession since the appearance of Renourd, translated by Comegys, of Cincinnati, on the same subject. It is a desirable and valuable treatise by a competent and entertaining writer and is worthy a prominent place in every practitioner's and medical editor's reference library.

STIRPICULTURE; OR IMPROVEMENT OF OFFSPRING THROUGH WISER GENERATION. By M. L. Holbrook, M. D., Editor of the *Journal of Hygiene*, author of "Hygiene of the Brain," "Advantages of Chastity," etc., etc. Published by M. L. Holbrook & Co., New York, L. N. Fowler & Co., London, 1897.

A good book for the lay reader and the newly married or those who contemplate matrimony, because it will turn the minds of the people to ante-natal causes of post-natal physical and mental, degeneracy.

The book is not, however, a strong book, not equal to the great philosophical and scientific impressions of truth in this direction made by Maudsley, Spencer aud others. But it is better than nothing and suited to common comprehension.

We are in receipt of the initial number of CURRENT THOUGHT, Cleveland, Ohio, in the form of a quarterly journal. Heretofore the publication has been published as paper covered books, called *Current Thought Library*. Mr. C. Elton Blanchard, the editor of this journal, was formerly publisher of the *Cleveland Medical Gazette*, and is an active student of Anthropological questions, being a lecturer and director of the American Institute of Anthropology. The medical profession will find much of interest in *Current Thought* as will any thinking man or woman. Sample copies will be sent upon request.

THE MEDICO-LEGAL ASPECT OF EROTO-CHOREIC INSANITIES. By C. C. Hersman, M.D., Pittsburg, Pa., Lecturer on Mental and Nervous Diseases, Western Penn. University (Medical Department); Member Staff Insane Department St. Francis Hospital; Alienist South Side Hospital; Late of W. Va. Hospital for Insane, etc. A reprint from the July, 1897, number of the ALIENIST AND NEUROLOGIST.

A timely and important paper. The subject should be better understood by the profession at large, especially the kindred subject, Nymphomania.

Anomalies and Curiosities of Medicine, being an Encyclopedic Collection of Rare and Extraordinary Cases, and of the Most Striking Instances of Abnormality in all Branches of Medicine and Surgery, Derived from an Exhaustive Research of Medical Literature from its Origin to the Present Day, abstracted, classified, annotated, and indexed by George M. Gould, A.M., M. D. and Walter L. Pyle, A.M., M. D. Forming one handsome imperial octavo volume of 968 Pages, with 295 Illustrations in the Text, and 12 Half-tone and Colored Plates. Prices: Cloth, $6.00 net; Half Morocco, $7.00 net. W. B. Saunders, publisher, 925 Walnut Street, Philadelphia.

Die Bedeutung der Augenstörungen für die Diagnose der Hirn- und Rückenmarks-Krank-heiten. Für Aertze besonders Neurologen und Ophthalmologen von Dr. Otto Schwarz, Privatdocent an der Universität Leipzig. Berlin, 1898, Verlag Von S. Karger, Karlstrasse 15. Preis M 2,50.

Index Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects, Second Series, Vol. II.

This valuable book continues to sustain its well-merited reputation as an indispensable reference to medicine for the medical profession, reflecting great credit on the industry, zeal and public and professional spirit of the Surgeon-General's office.

Systéme Nerveux Central Coupes Histologiques Photographieéo par le Dr. J. Dagonet, 1897, gr. in 8 de 12 planches tirées en phototypie cortonné, 3f50.

The plates in this good little work by a well known author, are accurate and instructive and the text is clear and interesting. The plates represent important centers of the cerebrum, cerebellum and spinal marrow.

Criminal Abortion: Its Prevalence, Its Prevention, and Its Relation to the Medical Examiner—Based on the "Summary of the Vital Statistics of the New England States for the Year 1892," by the Six Secretaries of the New England State Boards of Health. By Dr. H. R. Storer, Pres. Med. Staff Newport Hospital, etc., Newport, R. I.

Report of a Case of Intradural Spinal Tumor Extending Through the Foramen Magnum, Compressing the Extreme Upper Portion of the Cord, and Almost Completely Destroying it at the Third Cervical Segment. By J. T. Eskridge, M. D., Neurologist to St. Luke's Hospital, etc., Denver. Colorado.

The Eye in Hereditary Ataxia with a Report of Four Cases of Friedreich's Ataxia in One Family. By Charles W. Burr, M. D., Clinical Professor of Nervous Diseases in the Medico-Chirurgical College, Philadeiphia; Professor of Diseases of the Mind and Nervous System in the Philadelphia Polyclinic.

The Advance in the Principles and Practice of Medicine During the Sixty Years of the Reign of Queen Victoria. By Sir Dyce Duckworth, M. D., LL. D., F. R. C. P., Physician and Lecturer on Medicine, St. Bartholomew's Hospital; Hon. Physician to H. R. H. the Prince of Wales.

"Deficient Excretion from Kidneys not Organically Diseased and Some of the Diseases Peculiar to Women," and Diseases of the Skin. By L. Duncan Buckles, A.M., M. D., Physician to the New York Skin and Cancer Hospital etc., New York.

Experimental Basis of the Dietetic and Medicinal Treatment of Hyperacidity and Gastritis. By John C. Hemmeter, M.B., M.D., Ph. D., Clinical Professor of Medicine in the Baltimore Medical College, etc., Baltimore, Md.

A Contribution to the Pathogenesis and Etiology of Diabetes Mellitus. An essay to which was awarded the prize of the Medical Society of the County of New York. By Heinrich Stern, Ph. D., M. D., New York.

Splitting the Kidney Capsule for the Relief of Nephralgia. By George Ben Johnston, M. D., Professor of the Practice of Surgery and Clinical Surgery in the Medical College of Virginia, etc., Richmond, Va.

An Address by the Hawaiian Branches of the Sons of the American Revolution, Sons of Veterans, and Grand Army of the Republic to Their Compatriots in America Concerning the Annexation of Hawaii.

The Psychology of the Emotions. By T. H. Ribot, Professor of the College of France, Editor of the *Revue Philosophique*. The Contemporary Science Series. Imported by Charles Scribner's Sons.

Some Observations on the Relationship of Pelvic Diseases to Psychic Disturbances in Women. By P. T. Vaughan, M. D., Tuscaloosa, Ala., Assistant Physician, Alabama Insane Hospital.

My Recent Work in Appendicitis. Seventy Consecutive, Suppurative or Gangrenous Cases, Treated by Appendicectomy Without a Death. By Augustus Charles Bernays, of St. Louis, Mo.

Value to the Public of State Medical Societies. Presidential Address, Medical Society of Virginia, Hot Springs, September 1, 1897. By George Ben. Johnston, M. D., Richmond, Va.

On the Higher Education of Women. An address delivered before the members of the University Extension Association, at Horsham, April, 1891. By Sir Dyce Duckworth, M. D., LL. D.

The Relations of Diseases of the Skin to General Conditions. By L. Duncan Bulkley, A. M., M. D., etc., Physician to the New York Skin and Cancer Hospital, New York City.

The Significance of Degeneration to the General Practitioner. By Haldor Snévé, Chairman Section of Nervous and Mental Diseases, Minn. State Medical Society, St. Paul, Minn.

A Contribution to the Study of Spinal Syphilis. By William G. Spiller, M. D., Neurologist to the New Jersey Training School for Feeble-Minded Children, etc., Philadelphia.

Hydriodic Acid and Hypophosphites. Therapeutical Indications with Clinical Data. Edited by R. W. Gardner, Pharmaceutical Chemist, New York, Fourteenth Edition.

Entire Records of Medico-Surgical Practice with Auxiliary Blood Supply —''Hæmatherapy''—(or otherwise) at Sound View Hospital, T. J. Biggs, M. D,, Stamford, Conn.

The Hygienic, Educational and Symptomatic Treatment of Pulmonary Tuberculosis, With a Plea for Sanitoriums for the Poor, By S. A. Knopf, M.D., New York.

What Constitutes an Insane Criminal, and What Status Does he Occupy? By H. E. Allison, M. D.; Medical Superintendent, Matteawan State Hospital, Matteawan, N. Y.

Autogenous Poisoning in Disease. By E. D. Bondurant, M. D., Professor of Nervous and Mental Diseases, Medical College of Alabama, etc., Mobile Ala.

Endemic Multiple Neuritis (Beriberi). By E. D. Bondurant, M. D., Professor of Mental and Nervous Diseases, Medical College of Alabama, Mobile.

Stone in the Kidney. By Charles R. Robins, M. D., Instructor in Obstetrics and Demonstrator of Operative Surgery, Medical College of Virginia.

Syphilis of the Central Nervous System. By Sidney Kuh, M.D., Professor of Neurology, Post-Graduate Medical School, etc. Chicago, Ills.

Preliminary Report, Clinical and Pathological, of a Case of Progressive Dementia. By Chas. K. Mills, M. D., and Mary A. Schively, M. D.

The Antitoxic and Bactericidal Properties of the Serum of Horses Treated with Koch's New Tuberculin T. R. By Dr. C. Fisch, St. Louis, Mo.

Sulla Morfologia e Sul valore delle parti costituenti la cellula Nervosa, (Communicazione preventiva) pel Dott. Cesare Colucci, Coadiutore.

The Standard of Medical Education. By J. M. Bodine, M. D., Dean of the Medical Department, University of Louisville Louisville, Ky.

The Action of the Nervous System Over the Nutritive Processes, in Health and Disease. By Beverly O. Kinnear, M.D., New York.

Erb's Primary Muscular Atrophy. By Elmore S. Pettyjohn, M. D., Medical Superintendent, Alma Sanitarium, etc., Alma, Mich.

Comparative Frequency of Stone in the Bladder in the White and Negro Races. By George Ben Johnston, M. D., of Richmond, Va.

Symptoms and Treatment of Hepatic Abscess, with report of seventeen cases. By George Ben Johnston, M. D., of Richmond, Va.

Contribuzione alla istologia, patologia della Cellula Nervosa in Alcune Malattie Mentali pel Dott. Cesare Colucci. coadiutore.

Report of Two Cases of Syphilis, with Remarks Relative to Ptyalism. By C. Travis Drennen, M.D., of Hot Springs, Ark.

A Case of Double Facial Paralysis. By Eugene G. Carpenter, M. D., Consulting Neurologist to Cleveland City Hospital.

Neurasthenia or Neuro-sthenia; Which? and an Efficient Treatment. By Beverly O. Kinnear, M.D., New York City.

A Distinguished Physician-Pharmacist—His Great Discovery, Ether-Anæsthesia. By Joseph Jacobs, Atlanta, Ga.

Ein Fall von Myasthenia pseudo-paralytica gravis mit intermittirender Ophthalmoplegie, von A. Eulenburg in Berlin.

Vaginal Hysterectomy; A Review of Sixty-six Consecutive Cases. By Charles Gilbert Davis, M. D., Chicago, Ill.

The Differential Diagnosis of Neurasthenia and Its Treatment. By Elmore S. Pettyjohn, M. D., Alma, Mich.

Insane Confessions, Errabund Lunatics, The Corpus Deliciti and Crime. By Jas. G. Kiernan, M.D., Chicago.

Morbus Basedowii. Von Dr. A. Eulenburg, Geh. Med -Rath und Professor an der Universität, Berlin.

Alcoholism in Women;—Its Cause, Consequence and Cure. By Agnes Sparks, M. D., Brooklyn, N. Y.

The Prognosis and Duration of Attacks of Mental Disease. By Henry R. Stedman, M. D., Boston.

The Pathology of Tabes Dorsalis. A Critical Digest. By William G. Spiller, M. D., Philadelphia.

A Note on the Use of De Zeng's Refractometer. By S. Lewis Ziegler, M. D., Philadelphia, Pa.

Suicides in New York. By Justin Herold, A. M., M. D., Ex-Coroner's Physician N. Y County.

The Johns Hopkins Hospital Reports, Vol. vi. The Johns Hopkins Press, Baltimore, Md.

The Exact Treatment of Malarial Fevers. By Charles D. Slagle, M. D., Portsmouth, Ohio.

Ueber den gegenwärtigen Stand der Behandlung der Tabes dorsalis. Von A. Eulenburg.

Acquired Umbilical Hernia in Adults. By George Ben. Johnston, M. D., of Richmond, Va.

Some Observations on Paresis in the Negro, by P. T. Vaughan, M.D., Tuscaloosa, Ala.

A Case of Progressive Neurotic Muscular Atrophy. By Charles W. Burr, M. D.

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ORIGINAL CONTRIBUTIONS.

THE MILDER FORMS OF PERIODICAL INSANITY.

By DR. A. HOCHE,

Private docent and First Assistant at the Psychiatric Clinic at Strassburg.

THE term "periodical" does not apply to every disease that may occur repeatedly during a lifetime.

We do not consider erysipelas periodical because it attacks the same person half a dozen times; we do not speak of a periodical delirium tremens if an inebriate has it the third and fourth time, but we are authorized in making the diagnosis of periodicity when we observe, *e. g.*, a typical attack of migraine or an epileptic seizure in an individual for the first time. It is then not merely the fact of manifold repetition which constitutes the *character of periodicity*, but it is especially essential *that the individual attacks or times of the morbid condition are repeated without external cause or still without adequate external cause, for reasons which exist in the patient's constitution.*

It is the problem of diagnosis, and one not incapable of solution, to obtain if possible information as to the probable periodical character of one of these disorders on its first occurrence from certain of its peculiarities.

Among *mental disorders* we find a relatively high percentage of periodical diseases, which is considerably increased by those corresponding to the opinions of a certain kind in psychiatry, which will then be diagnosed as periodical from the clinical type of the individual attack, if perhaps only one or two have occurred in a lifetime.

Very many of the patients with the *milder forms of periodical mental disorder* are *never*, or only very late in the disease, *treated* in a *hospital for the insane;* a greater part of these are never considered ill; numerous *transition forms* occur between the physiological oscillations of the psychical equilibrium and the severe and gravest cases which periodically or constantly require care from the first.

In the milder forms accrue to the physician, especially the family physician, problems in diagnosis, therapy and especially in prophylaxis, which will be briefly presented in the following pages. It will be impossible to consider all the varieties and subforms described here and there, but we will have to limit ourselves to those the most common and practically important.

The comprehension of the periodical mental disorders is facilitated by a glance at certain well-known periodical psychical oscillations, which are practically within the bounds of health*.

In a large number of persons who are in no way regarded as abnormal, the psychical condition, particularly the disposition, and thus frequently the ability, is subjected to certain more or less regular changes which occur either without perceptible connection with external conditions or apparently depend, *e. g.*, on seasons, state of the barometer, sky, etc.; these alternating changes are accordingly conscious to the subject as "ill-humor" or as a condition of "being well-disposed." In many mental workers, but especially in artistically constituted natures characterized by a fertile imagination, this irresolute state of the mental action is again reflected in the lack of uniformity of the productions, who at times are completely idle, to then again be ener-

*A thoroughly physiological example of active periodical psychical changes with repetition of definite concepts, feelings, impulses, etc., is offered by animals in times of rut.

getically active for longer or shorter periods; there are "periodical laborers" as well as "periodical drinkers."

In the female sex, at any rate within average bounds, periodical physical processes in the body are found as a reason for oscillations of the affective equilibrium, and we are accustomed to regard the peevishness, motiveless caprice, "apprehensions," etc., of women at the time of the menses, simply as a half normal, legitimate attendant symptom. Affective oscillations of greater extent, which are not regarded as morbid, are well-known to occur during pregnancy. It is usual that for a shorter or longer time during pregnancy a depressed affective condition, prone to fears and anxious thoughts, prevails; but quite often we find the form which in a certain measure is the opposite of the preceding, the women during pregnancy feel "very well," are free from the tendency to pessimism, which at other times is peculiar to them.

We find this causeless oscillating character of the disposition, with which the patients and those about become familiar as a rule, the most marked in those persons whom we characterize as "sensitive," "nervous," "labile" (*desequilibre*) according to their usual disproportionately active mode of reaction to external impressions of pleasant or unpleasant character, and a careful analysis in the majority of these cases reveals the presence of considerable nervous hereditary taint, whose only manifestation may be this peculiar psychical constitution, the readiness with which the "position" is lost.

The true *periodical mental disorders* are developed almost exclusively on the basis of *hereditary nervous disposition;* their chief characteristic—except all details—is their repeated occurrence of motiveless anomalies of disposition in the sense of depression or exaltation, and in face of the fact of all possible gradations, an authorized truth lies in the opinion that this constitutional lability at the verge of physiological oscillation differs only in degree from that which is described as "periodical mental disorder," that it not only furnishes the foundation for the development of periodical psychoses, but in a certain measure is an abortive form.

Hence it is almost immaterial whether an apparently internal or external exciting factor is discovered as the cause of the change of disposition or whether it is apparently spontaneous; the essential in every case is that the psychical curve tends to run in a waved line.

It is immaterial as to the *principal significance* of this form of mental disorder whether the several alternating phases follow one another rapidly or slowly, whether they are of long or short duration, whether only periods of depression or only those of exaltation succeed each other, or whether these alternate; the type is of little account with respect to the significance of the determination of the fact that in a given case a periodical mental disorder exists; the *practical prognosis* in particular is influenced by the sub-form of the periodical disorder. Therefore the old classification that described the cases as periodical mental disorder, which presented a sequence of either the depressed or exalted phases, and as "circular insanity" those in which both phases occurred alternately with or without an interval, can no longer be maintained. The *whole group* is to be called *periodical mental disorder*, of which the circular cases are possibly only a variety.

It is also improper to separate those periodical disorders which follow or are coincident with certain physical processes, like menstruation, or possibly, from the apparently spontaneous; the latter probably depend on certain alternating physical states, only we do not yet know them.

As already stated *hereditary conditions* play a great role in the pathogenesis of periodical mental disorders. In proportion, *e. g.*, to neurasthenia or hysteria the milder forms of the periodical psychoses as a rule depend on a higher degree of hereditary, often direct influence, and perhaps in no other psychical anomaly do we so often find homogeneous heredity, *i.e.*, that the offspring of a periodically insane father or a periodically insane mother are subject to periodical disorders.

The *milder forms* seem to be no less hazardous in the constitutional character of the periodical mental disorders to the following generations than the severe forms; practically

they are more dangerous in that their apparently insignificant symptoms are not readily regarded as a bar to marriage, while the severe forms, if not beginning too late in life, will exclude propogation in the majority of cases.

The *childhood* of individuals with later periodical disease may present no peculiarities; at other times we find in childhood those traits which are observed in marked hereditary taint: at first tendency to convulsions and delirium in slight physical disorders, in early school years, inattention, irritability, capriciousness, lack of uniformity in the mental ability, early masturbation, absent-mindedness in instruction. But quite often, particularly in persons later affected with the circular form a certain periodical arrest of the faculties is observed during the school years—lack of uniformity in the class, periods of stagnation, alternating with normal progress, etc.

Real periodical mental disorders strictly are *rare in childhood;* it must not be lost sight of that the periodical disorders which in adults are characterized by a certain milder nature of the individual attacks, may be very readily overlooked in children owing to their little developed personality and the physiological tendency to change of disposition peculiar to this age. The occasional temporary tendency to isolation, of ceasing the habitual play, etc., occurring in nervous children may really be regarded as depressive phases of a periodical disorder, as well as it is probable that the frequent suicidal attempts of school children with strong hereditary taint occur during such a melancholic stage. Whether a connection exists between the anomalies of disposition, such as accompany repeated attacks of chorea in childhood and subsequent periodical psychical diseases is not definitely known.

On the whole, all these disorders in children *subsequently* maintain their importance; it will rarely be possible to foretell a subsequent periodical psychical disorder with any certainty; the significance of all the symptoms named in children are rather that they are signals of warning which should incite *prophylactic measures.*

On the approach of puberty the relation of the two

sexes diverges; in the female sex, disposed to a higher percentage of the periodical diseases, the menses, frequently the period preceding their first occurrence also, often occasion the first unmistakable condition of periodical psychical anomaly. It is either a quantitative intensification of the frequent menstrual anomalies of disposition above mentioned or, what is more common at puberty, temporary states of excitement with irritability, motor impulse, tendency to acts of violence or states of stuporous confusion with terrifying sense deceptions.

Both the latter forms are not of bad prognosis; they may gradually disappear after recurring several times; whereas *simple depressions*, which are coincident with *the first menstruation*, in many cases are *the first signs of a circular psychosis* and therefore are of a really unfavorable prognosis.

The menstrual psychoses are the periodical which are the earliest to be diagnosed; the menstrual type then is plainly indicated when the menses do not appear at the time they should.

In girls approaching puberty it is always to be considered that the menstrual type may be present in psychical anomalies ere menstruation has occurred for the first time.

At *puberty in the broadest sense*, then until the 25th year, those periodical cases, which may be regarded as the *chief group of periodical manias*, most often begin in girls and women, with or without reference to the menstrual type, and in men also.

The theory of *mania* has been considerably changed within the last two or three decades; it had been very materially restricted years ago by the separation of forms not belonging to it, and has been still further restricted recently by the generally accepted opinion that *a greater, perhaps the greatest part of pure, simple manias* are *only individual phases of a periodical mental disorder*, and very recently *Kræpelin* has entirely denied the existence of mania as an independent disease entity; he thinks mania in its nature is always a periodical disease, with a proviso that

the periodicity does not always need necessarily to be manifested in numerous recurrences.

It is to be expected that the principle of this opinion based by *Kræpelin* on clinical material very carefully collected will soon prevail in spite of the strong opposition meeting it to-day from the most diverse quarters.

But for the purpose of *medical prognosis* it is not merely the *principal position* of mania; a periodicity which consists merely of an attack of mania occurring in the twentieth and fiftieth year is *not periodicity practically;* from this point of view it is a second attack of the same disorder during a lifetime; it is more to the purpose of this description to consider those cases periodical mania in which the periodicity exercises a definite influence on the formation of the whole existence of a personality.

We now frequently find that the manias which recur but a few times and are separated by long intervals of 10, 12, 15 years and over, are always severe psychical diseases of long duration.

These cases correspond to the description generally given of mania in the text-books.

Those forms which frequently recur are not usually severe; they last a few weeks or months and the intensity of the maniacal excitement is less than in the former cases, so that the *diagnostic rule* has long been entertained to consider *manias of rapid course, apparently "recovering smoothly," as probably periodical.*

This milder form will chiefly here occupy our attention.

Three principal symptoms, which are generallly indicated at least in the mildest cases, belong to the type of mania; *exalted disposition with a tendency to quickly change, flight of ideas, motor impulse.* Marked clouding of consciousness, sense deceptions or fixed delusions, play no part.

The *beginning of the first attack* may be very sudden; but usually a period of *prodromal physical symptoms* precede in the way of loss of appetite, poor health, etc., when these seem to suddenly disappear as soon as the real psychical symptoms of mania are manifested. As a rule these

quickly increase to that intensity attained in the individual attack.

The patient seems cheerful, excited; the eyes glisten, all movements are active; they are more talkative than usual, always have an answer ready in that, in accordance with their "good feeling," a certain tendency is expressed to be witty at others' expense, or an increased irritability and liability of the disposition.

The exalted self-feeling which possesses the patients, in conjunction with increased motor impulse, is manifested in a restless activity, in the tendency to make purchases, to contrive new projects, grand schemes, to go into those which perhaps far exceed their ability, to undertake useless journeys, to engage in amours, to prefer noisy society, to commit excesses of all kinds, etc.

Naturally all these things readily occasion conflicts, possibly with slight violence, to which the patient, at first perhaps amiable, genial, amusing, is almost without exception driven by his explosive irritability and tendency to rapid change of disposition.

In this stage they are often considered psychically ill, but more commonly as intoxicated. This is due in part to the fact that in the milder forms of periodical mania the consciousness may be retained for a long time or constantly, and that the patients are able to explain and excuse their excesses or absurdly strange acts by an often surprising logic. But on a closer inspection the appearance of a real increase of the intellectual ability is proven to be false; in conversation the patients cannot stick to the point, they fly off about relative matters or simultaneous external perceptions; momentary fancies direct the conversation and their "wit" as a rule is limited to the discovery of superficial relations, similarity of sound, observation or trifling weaknesses in those about, etc. In a somewhat higher grade of the disorder the patients' external appearance is noticeable; in the female sex increased sexual desire is manifested in the tendency to dress loudly or of making advances of a physical nature to men; in others the consciousness does not suffice to resist the impulse to strange, possibly forbid-

den acts. A part of the cases of so-called "kleptomania" (which do not exist as such), cases which are a constant topic of the daily press, belong to the domain of periodical mania (or to the maniacal phase of circular insanity).

During the existence of these psychical manifestations constant *attendant physical symptoms* are also found; the sleep is always greatly lessened, nutrition suffers, less by lack of appetite than that the patients have no rest, no time to eat; the body weight generally falls.

After some time, weeks, months at the most, the excitement gradually ceases; a certain feeling of illness, then also appreciation of the disease, occurs, which in conjunction with the preceding exaltation and occasional crying, may give the stage of convalescence a peculiar psychical stamp.

In these mild cases, after the excitement ceases, great general weakness, psychical fatigue and irritability usually exist; but the first mild attacks may not essentially impair the psychical personality. These mild forms of periodical mania are of a special stamp when they are developed in youthful imbeciles, as is quite common, by their silly behavior and a certain elementary character of the increased motor impulse.

Transitions of the *milder forms* of periodical mania *into the severe and gravest varieties* occur by *simple intensification* of the only moderately pronounced symptoms, which with incoherent confusion and frenzy may last for many months, years even, and in a certain portion of the cases terminate in dementia or death. Then these are always cases, which if they only recur at long intervals, can never be treated at home.

It is often found that with great frequency of recurrence the individual attack increases in severity, while the length of the interval decreases.

On the whole, *pure periodical mania* in its mild forms is *not a very common disease*, at any rate much rarer than the circular forms, also more rare than the mild states of periodical depression. The *diagnosis*, which in the first attack the possibility of the presence of a circular psychosis must be always kept in mind, depends for periodicity on

the generally mild character of the symptoms, the retention of consciousness and the relatively rapid, favorable course of the disorder.

In the majority of cases *pure periodical melancholia* begins in the prime of life, in woman possibly about the climacteric; in a smaller portion it occurs earlier in life.

Direct nervous hereditary taint does not seem to have the significance in this form as, *e. g.*, in the circular forms.

For the individual attack we often find an *apparently* exciting factor in the anamnesis, like, *e. g.*, removal to new surroundings in a strange place, mourning for relatives, in men financial reverses, failure in business, etc.; but usually such a condition does not exist, whose character as the real cause of the disease is questionable.

Of the various clinical types of states of depression which are described as melancholia (melancholia simplex, agitata, stupida) in the periodical form, we find usually only *melancholia simplex* and with the further attribute—*levis*.

The disorder generally *begins gradually;* physical discomfort, loss of appetite, restless sleep without refreshing, feeling of head pressure, etc., may accompany the slowly developed *depressed disposition* from the first, or precede it for a time.

In the *mildest grades* of the disease we find without any other symptoms this depressed disposition, a motiveless apathy and dejection, which often recur regularly at certain seasons (Fall and Spring preferably). The patients know no reason why they are occasionally depressed by gloomy feelings, vague presentment of an impending misfortune, why they are no longer capable of enjoying this or that, or they erroneously seek reasons for their depression in external events of perhaps wholly insignificant character.

But this mild depression as a rule suffices to influence the person's actions; the patients retire from society, neglect their private correspondence and other duties, which must not be attended to at once, but are still able to associate with other people when necessary without occasioning remark and of complying in a degree with the demands of their occupation. The change in character is apparent only

to those who have previously known the person intimately. Alternations of anxious depression are frequent, but a real anxiety is as little developed in this form as a delusional falsification of external conditions.

The *course* is generally quite short; after a few weeks or months the normal condition gradually returns and the patient recognizes that his disposition has been morbidly affected in the past, a view which may disappear with each new attack.

The *most favorable cases* continue in this mild depression, coming and going periodically; at other times the attacks are of the mildness described to become successively more severe at each recurrence; or finally this mild depression may be a premonitory stage of an ordinary melancholia simplex levis.

In this case the *depression* increases in *intensity*, the patient loses all pleasure in his business, in his family and in ordinary enjoyments; his cares, also those to which he is accustomed, depress him more than usual, his prospects seem more gloomy to him, his physical condition serious; his fear of "losing his reason" is increased by his observing that his *psychical processes* are *inhibited*.

This inhibition is not always objective in a brief conversation; but the patient is painfully conscious that tasks that he had usually mastered readily, become harder and harder for him; memory of names, dates, numbers causes him considerable effort; trifling acts seem to him like insurmountable obstacles, until he finally ceases trying to overcome the inhibition, becomes resigned and lets matters go. Also in the patient's *outward appearance*, in gait, speech and expression this psychical inhibition is manifested. Real delusions—delusions of sin, firmly formulated anxious fears —do not occur as a rule in this mild form of melancholia; the morbidly false color given to all the concepts by the anomaly of disposition, which refers to the *ego*, naturally affects the past and future; the patients are usually critical enough to resist the formation of delusions.

In these milder cases the hours of solitude in sleepless nights (in ordinary "nervous" persons the time when the

"position" is the most readily lost) are when *self-accusations* and worries assume a serious form, owing to the want of correction by daylight and those about.

The same is true of the *feelings of anxiety* with praecordial localization, but which in periodical cases rarely attain the intensity of agitated melancholia.

This circumstance causes in the majority of the cases of mild periodical melancholia the *consciousness to be retained*, and also the danger of suicide is not nearly so great as otherwise in melancholia. The old rule, always too little regarded, *not to trust a melancholiac with respect to his ideas as to suicide any further than we can see him*, is equally applicable to periodical melancholia.

Only in the mildest cases does the memory of previous attacks afford the support of *appreciation of the disease* on its recurrence; as a rule reference to the happy termination and appreciation of the disease present during the interval is rejected with the assertion that it is entirely different this time.

Physical changes, especially loss in weight, aged appearance, generally accompany the mildest attacks; constipation is an almost constant attendant symptom.

Except in the very mildest cases, in which the depression recurs frequently, perhaps every year, the *lucid intervals* between the two attacks *usually* lasts *several years*, so that in melancholia frequently beginning late, possibly only a limited number of individual attacks are developed.

The majority of cases of these mild varieties are never treated in a hospital; a *greater part* of them are *diagnosed neurasthenia and hysteria;* it is to be admitted that the differentiation from these two neuroses may be very difficult in certain cases.

The *diagnosis of a periodical melancholia*, as well as the assumption of a functional depression, is then especially permissable in *men of middle age*, when a careful examination excludes the presence of *progressive paresis* with practical certainty; the points of differential diagnosis have been

fully discussed in my monograph on *Early Diagnosis of Progressive Paresis.**

We very often meet with *severe forms* of recurrent melancholia, but which are not differentiated from the non-periodical cases and therefore will not need to be discussed in detail here; in these cases it is very questionable whether the fact that a severe melancholia has occurred two or three times, suffices to give the disorder the character of periodicity.

The *third chief variety* of periodical mental disorder, the most important as to frequency and practical significance, is the so-called "*circular insanity.*"

Since the first publications in regard to this disorder fifty years ago it has always attracted the greatest interest by the often strikingly *sudden alternation* between the *apparently entirely opposite psychical conditions* of melancholia and mania and by the *intensity of the simultaneously rapid oscillations of the physical functions*, and has also led to the presentation of numerous hypothetical explanatory efforts, which may be wholly disregarded here, as none of them seem to be based on certain facts.

The clinical material described is perhaps not so abundant in any other form of mental disorders as in this, except progressive paresis, still without the various authors agreeing except as to the principal points in the definition.

In the extremely *great variety* of the types of circular insanity the individual sees only a portion of the grand domain, according to his morbid material, and so the description of its course varies greatly accordingly as the patients considered are in insane hospitals, clinics or in private practice. The following description will especially take account of *the forms that do not as a rule come under institutional care*, which in circular insanity constitute a larger portion of the cases than in periodical mania and periodical melancholia.

In no small part of these cases running their course at home is the nature of the psychical peculiarity not recog-

*Dr. Hoche's monograph on the "Early Diagnosis of Progressive Paresis" appeared in English in the January, 1898, number of the ALIENIST AND NEUROLOGIST.—Translator.

nized; the milder cases are rarely considered "ill" by their nearest friends.

The *mildest grade* of the disorder is not separated by any sharp boundary line from the conditions of *constitutional labilitv* in persons of hereditary taint mentioned in the introduction.

There is found then *in youth* or *beginning* at *puberty* an *alternating condition of the disposition* and in the manner of the psychomotor manifestations. Periods of optimism with self-confidence, speculation, social tendencies and appreciation of all the pleasures of this world alternating with those of a mild depression, uncertainty, anxiety, seclusion and a tendency to low spirits of a hypochondriacal color.

In persons with this form, who are often peculiar as to habits, passions and views of life, *this cycle of alternating phases may be repeated through the whole life* without developing further and even without more seriously damaging the psychical personality; also in these mildest grades the *recurring similarity* of the corresponding types is generally found to be unmistakable, as well as in an accompanying change in appearance, manner, etc.

At the most the phase of depression is generally considered abnormal, when the physician is occasionally consulted as to the cause of the hypochondriacal attacks. An active therapy, baths, change of air, etc., creates perceptible change as soon as the other phase sets in.

This form does not generally have a "*lucid interval*"; the individuals are always either "above" or "below the mark."

In *simple quantitive intensification* of this symptom complex we then meet those circular disease types, which in France has recently been given the very needless term of "*circular form of neurasthenia.*"

Under the gradually stronger accentuation of the alternating phases present in those personalties, conditions are developed, which in the depression at least, cause medical advice to be sought as a rule.

The patient is irresolute, uncertain, feels an unusual need of leaning on stronger characters; the world and it

interests tire him; his past life seems a failure; self-reproaches also occur; sleep is insufficient, the appetite is lessened; sensitiveness to light, noise, strange faces cause complete seclusion, in which the patient is inactive, without interest, except in his own feelings and physical discomforts, a plague to his family. After weeks or months the type *changes, often suddenly, during the night.*

The patient feels "well," capable of work; the inhibition of his thoughts has disappeared; with vigor he takes up his neglected work, which he now does easily and often successfully; he is now satisfied with himself and things in general, often more than that, an inordinate idea of his own ability, verging on grandiose delusions, which is the cause of his zealously taking in hand matters of other people, the community, the society, the neighbors. Fatigue is perceived neither in his work nor in the eagerly sought, plentifully enjoyed pleasures, sleep is short, but often better than in the previous phase; his appearance is improved, appetite and digestion are good.

This condition lasts for a time until finally—according to the opinion of the patient and his friends owing to "overwork"—the beautiful fire is extinguished and the whole scene is totally changed by passing into the depressive phase.

This form, which gradually induces generally an *enfeeblement of the mental faculties* and a certain *blunting of the emotions*, exists as a rule the whole life. It has the destiny, like the majority of the forms of circular mental disorder, that the type of the recurrent attack is more continuous, the duration of the individual periods becomes more irregular until finally the secondary psychical changes are more prominent.

The *melancholiac and maniacal traits* present still more by intimation in the alternating conditions of this latter form are not so perfected that an *alternation between real melancholia and mania* must be spoken of; these are the cases which are generally described as "circular insanity." The milder do not need institutional care, the gravest cannot remain at home at first or afterwards.

In the majority of the cases the alternating phases in this form of circular insanity *tend to a mild course in the individual attacks*, with retained consciousness, without the formation of delusions and without the development of intense anxiety in melancholia, without flight of ideas and without frenzy in mania. We then find again those *conditions*, which we became acquainted with in the *milder forms of periodical mania* and the *milder states of depression*, which therefore need no further description.

Increasing experience will probably show that the frequently recurring mild, brief attacks of exaltation or of depression *are more closely related to true circular insanity* than to the periodical forms, in which severe and long continued states of mania or melancholia but rarely occur. The great multiplicity of the varieties of the circular type may now make the boundary line seem more than half voluntary.

In the largest number of circular cases the disorder *begins* at puberty in its broadest sense with a phase of *depression;* then a relatively lucid interval occurs, which is followed by the exalted period, or the original depression passes at once into the maniacal excitement. In the individual cases, variations occur in the whole course, in that the intervals are wanting, may be of longer or shorter duration, that the phases really alternate or after repeated recurrence of one condition the other occurs—in short it is impossible to make statements generally applicable.

For the comprehension of the whole disorder the observation seems of a certain significance that, *e. g.*, in the midst of a long continued melancholiac depression it is quite often interrupted for a day by that of exaltation to again quickly disappear. In long continuance of the circular disorder these irregular intervals are generally more frequently inserted. The circular forms composed of "real mania" and "melancholia" manifest a tendency to the subsequent disappearance of the type, also in the individual symptoms.

The several individual traits of maniacal excitement and melancholiac depression at first, at any rate, are generally *so exactly repeated* that a *detailed prognosis* as to the

probable course may often be given. Little, trifling *prodromal symptoms*, which are know from the first attack, like the tendency to dress peculiarly, arrange the hair oddly, etc., indicate the *threatened approach* of an attack not known.

The *psychical condition* conforms in a particularly pregnant way to the psychical oscillations; the turgor of the tissues, the brilliancy of the eyes, alternate, wrinkles in the face come and go, the carriage is languid and again elastic, apparent differences in age of 10 to 12 years are found in the appearance between one and the other phase in milder forms, and we especially find in a short time often essential oscillations in the body weight.

The possibilities of the course of circular insanity are not exhausted by those previously described; there is found among the cases composed of melancholia, mania, etc., *those* in which the *depressive* phase particularly does *not* present *the mild character*, but all the characteristics of a *severe melancholia* with *active delusions of sin* and *intense anxiety;* these cases are especially unpleasant owing to the *considerable danger of suicide* and under all conditions require the custody of a closed institution.

A *further variety*, which at least renders a residence at home impossible as a rule, is characterized by the one or the other phases being *replaced by different psychical conditions*, of which *stuporous confusion* with numerous sense deceptions is to be especially mentioned.

To go more fully into these severe forms would take us too far. The so-called "*symptoms of the interval*" demand special mention, not only of the circular forms, but of periodical insanity in general.

In many cases of *periodical melancholia* and *periodical mania* there are *no true symptoms of the interval*, this is not to be expected in the cases theoretically placed among the periodical mental disorders, in which perhaps at puberty and at the threshold of old age an attack occurs, while the greatest part of the life has been an "interval."

At the most we find those *nervous or psychical peculiarities*, which must be regarded as the expression of the

presence of *hereditary nervous taint*, which is then *coordinated* to the periodical insanity, not due to it. In *other cases* with *frequently* recurring states of psychical disease the *intervals originally* are *free* from abnormal psychical manifestations; but *gradually several anomalies* remain behind, like irritability, constant lability, intellectual deterioration, blunting of the aesthetic and ethical feelings, manifestations which may occur after repeated attacks of mental disorder *not* periodical.

In the *circular forms* the interval, if it exists, is not *free* as a rule *from the first*, and we find in part the general nervous anomalies of heredity, in part the secondary psychical changes mentioned, very prominent.

Hence it is that circular insanity must be regarded as the gravest of the periodical mental disorders, in which usually their *hereditary degenerative character* is expressed.

The following *general diagnostic and prognostic tenets* may be added to the preceding statements, of which it is to be said that they are somewhat more definite and simple than corresponds to the really complicated conditions:

In any melancholic depression or maniacal excitement occuring for the first time it is possible that it is a matter of a periodical disease; this possibility is then to be *especially* kept in mind when *strong hereditary nervous* influence is provable.

Rapid onset of the disorder, *moderate intensity* of the symptoms, relatively *mild course*, *seemingly quick recovery* indicate a periodical character.

The occurrence of a melancholic depression, if trifling and of short duration, as the *first* psychical disease in youth, is especially suspicious in the sense that it may be the first phase of a circular insanity. Mild mania quickly recovering in youth, as the *first* psychical disease, does not belong to circular insanity in the majority of cases, but another maniacal attack may be expected later.

The first illness with mild, transient *melancholic depression in the prime of life*, or in women near the climacteric, does not indicate a circular psychosis, but renders probable simple recurrences of the melancholic phase later.

The first occurence of *alternating phases* of exaltation and depression in the fourth and fifth decades, is a symptom, in men particularly, which must awaken the suspicion of *incipient progressive paresis;* the decision depends on the findings of a physical examination and the proof of a rapidly deteriorating intellect; the same is true of states of simple depression occurring for the first time at the age mentioned.

It is determined in regard to *prognosis* that the periodical mental disorders in accordance with their character as manifestations of a constitutionally abnormal predisposition, are to be regarded as *favorable as to the termination of the individual attack, incurable as to the whole course.* In a single case, however, in the milder forms, under the influence of external conditions and proper treatment, the course may be so mild that the individual continues to be a useful member of human society.

The danger of the development of conditions of secondary psychical enfeeblement is not very great in the periodical mental disorders; the intellectual ability of periodidal patients may remain essentially unaffected through the whole life, particularly in mild attacks regardless of their frequent recurrence; whereas gradual changes in character *in pejus* are developed, in circular cases particularly.

The milder forms of periodical mental disorder rarely influence the probable duration of life.

The *treatment* of periodical mental disorders has various indications to fulfill.

The slight effect, as subsequently shown, that our therapeutic efforts on the whole generally have on the fully developed cases, makes *prophylaxis* and the earliest possible prophylaxis appear to be the first duty of medical science.

This has to begin for the still unborn generation with the efforts to prevent as much as possible the marriage of nervous, hysterical and epileptic individuals, especially when both parties are abnormal. The knowledge that these efforts will rarely succeed in the question of marriage does not relieve the true "family physician" from telling the

interested parents of the possible consequences of the projected union.

The *medical prophylaxis in childhood*, which naturally must be directed to a *general prevention of nervous and mental disorders*, for at this age later periodical disorders cannot as a rule be predicted, meets with scarcely surmountable obstacles in the fact that nervous parents by their lack of stability and self-control generally have little favorable influence on their children in the way of training; the reason is not only their bad example, but especially that the measures of training generally are not conducted from points of view as to consequences, but from the alternating moods of the parents. For the children of such nervously tainted families there exists, besides the necessity of a *specially careful physical training* and *inurement*, the indication for a close *supervision of the intellectual and emotional development*.

For these the danger of *overfatigue and exhaustion* by absolute or relatively too great *demands in school* or by irrelevant matters is to be kept in mind, special attention is to be given to the *children's mode of reaction* to pleasant or unpleasant events, which may very early show peculiarities of prognostic importance lasting through their whole life.

If we cannot change naturally a morbid predisposition being expressed in the germ, there is no doubt that it is possible to practice successfully a sort of *psychical gymnastics*.

The unlimited granting of every wish, excessive consideration of the expressions of childish displeasure about unfulfilled expectations and hopes, loving cultivation of motiveless peevish moods—all these common defects of training in the better and so-called "best" class, weakly support the future psychical organism at the point on which in later life the preservation of emotional equilibrium depends, namely the elastic power of resistance to adverse internal or external events. To develop the power of resistance as much as possible is the duty of training which is best attained by consistency, quiet and stable firmness without excessive strictness.

A number of *chiefly physical procedures* act in like man-

ner, such as cold baths in summer, cold frictions regularly in the morning, rational sports and similar measures, which have their significance in the *prevention of masturbation* in boys.

For these it may be advantageous, from unfavorable parental influence, to have the school years passed away from home, under the regular discipline of a boarding school with its abundant mutual correctives by the older pupils; but closed educational institutions have their sexual dangers for nervously disposed individuals.

For *girls of nervous families* the occurrence of puberty and the beginning of menstruation renders special precautions essential, by whose neglect much harm is done, even by physicians. Theoretically it will be readily admitted that nervous girls at the time of the menses should be kept quiet, remain in bed from one to two days if possible; but in reality the good intention, if it exists, is often enough broken over by an approaching amusement, ball, excursion, etc. A part of the vague nervous troubles of approaching womanhood would vanish with strict regulation of the mode of life at the time of menstruation.

Very definite indications—and thus we come to the real *treatment*—occur at this point when the signs of real periodical psychical anomalies of the menstrual type are manifested in a girl.

In this case it is an unconditional demand that the time from the occurrence of the first molimina praemenstrualia until several days after the flow ceases, is to be spent in bed.

It may be seen that girls who are extremely peevish, ill-natured, irritable, when during menstruation the daily demands on them are greater, should pass the whole time in bed with good psychical surroundings.

The *states of periodical menstrual excitement* already mentioned demand medical treatment, besides rest in bed and hot applications to the abdomen indicated by the presence of pain; the administration of *bromides* in doses of 4 to 5 grms. *pro die*, alone or in combination with *opium* (0,02 to 0,04, according to age and constitution 2 or 3 times a

day) is advisable; with simultaneous severe dysmenorrheal troubles, it is proper to give the opium in *form of suppositories.*

If the diagnosis of the periodical mental disorder in one of the forms above described is made the patient's *whole conduct* needs regulation from the point of view that the demands on the ability and power of resistance are lessened; excesses in work, as in pleasure, particularly in alcohol, are likewise to be restricted; it is worthy of effort, as far as conditions permit, to make laws for a uniform, even pedantically regulated mode of life, as they are intelligent patients, who, conscious of their tendency to periodicity, recognize the usefulness of these aids. It cannot be expected to thus keep down the severe forms of periodical mental disorders, yet it is to be hoped of the milder types that the individual attacks will occur more rarely, be of a milder character.

In each attack the physician has to decide as to *treatment at home* or *commitment to an institution.*

A general rule can be given less in periodical mental disorders than in the other psychical anomalies, for it not only depends on the special home relations, but particularly on the different degrees of intensity and the type of the disorder.

Commitment to a closed institution (not to open hospitals, sanitariums, etc.,) during the individual attack is then indicated under all circumstances when the morbid manifestations are such that *their consequences are apt to injure the individual's personal or social existence*, when, *e. g.*, in a melancholiac stage the danger of suicide exists, in a condition of maniacal excitement, that of squandering money, excesses, penal acts.

In the interest of the patient the commitment to an institution is then necessary, as this is the rule, so soon as the requirements of special care in regard to nourishment, baths, rest in bed, etc., can be better fulfilled than at home. Whereas it cannot be claimed that all milder cases of periodical mental disorder unconditionally need the care of an insane hospital.

After what has been said as to the clinical types, in subsequent recurrences the course of the individual attack may be predicted as a rule, so that early, at the beginning of the well-known prodromal symptoms its conditions may be met. It may be useful, if institution treatment does not seem necessary, to propose *a change of residence* to the patient. This is applicable to those *mild states of maniacal excitement of the circular form*, which occur without marked motor impulse, without severe attendant physical symptoms, and in which the anomaly of the disposition is the most prominent symptom. It depends on withdrawing the patient from friction with his daily surroundings, the demands and dictates of society and of placing him in quiet, simple, clearly arranged conditions. Residence in the country, small resorts without table d'hote, without society are to be considered, which is pernicious for girls with abnormal predisposition owing to the opportunities for flirtation, for male patients owing to the incentives to drink to excess. The attendance of a trusty person, who possesses a certain authority and in given cases is able to arrange for a commitment to an institution, is presupposed.

In the *home treatment* of the milder maniacal conditions general regulations are essential: physical and mental quiet with the greatest possible rest in bed, lukewarm, long continued baths, good nourishment; of medicines, according to recent experience large doses of bromide (even 12 grms. *pro die*) as well as the older opium therapy, are to be recommended, as also the necessary hypnotics.

Beginning the treatment as *early* as *possible* is essential. The first prodromal signs, mentioned by the patient himself, as this quite often occurs, or noticed by those about, furnish the indications for beginning the therapy, which under the supposition of this early institution will abort the threatened attack, but at any rate more will be attained than when the initial period is spent in hydrotherapy, etc., as frequently happens.

In the *melancholic phase** the visiting of watering places, etc., is decidedly inadvisable.

*See Prof. Ziehen's Diagnosis and Treatment of Melancholia, soon to appear in English in the American Journal of Insanity.

It is an opinion held by the laity, by which many physicians are also guided, which is strange, that a melancholiac depression can be relieved by amusements, journeys, residence at bathing places, etc.; the result desired always fails in real melancholiacs.

A melancholiac patient, whether his depression is of the form of simple repetition of the melancholiac phase or of the circular variety, needs rest and preservation of his strength, which are best secured by constantly remaining in bed. This is also applicable to simple melancholic depression without delusions and without intense anxiety, at least in the beginning of the disease.

The bed treatment likewise facilitates the essential *surveillance in regard to the suicidal tendency*, whose presence must be assumed *a priori* in melancholia, which danger is almost always depreciated by relatives and physicians in every apparently mild melancholic depression. It has been mentioned that the first serious signs in this respect seem to render commitment to a hospital imperative.

In the treatment of the milder forms of melancholiac depression long continued lukewarm baths are proper, which directly induce sleep in many patients, but do not always take the place of hypnotics.

Of medicine, bromide and opium are the most common; with the latter after the individual's *personal reaction* to the opiate is determined, it is improper to proceed too timidly with the doses. In alcohol we have a valuable remedy for combating *anxious suspense*.

After all it is true of the treatment of all forms of periodical mental disorder, as is not strange from their constitutional character, that our therapy is able to exercise little influence on the general course in the severer grades of the disease. It is in part purely symptomatic and has the object especially of protecting the patient from *social* injury by reasonable interference.

A brief discussion of the legal relations to be considered in periodical mental disorders, follows.

Forensically the milder cases of periodical mental disorder may offer great difficulties, not in the sense that they

would be especially inaccessible to medical estimation with sufficient knowledge and corresponding diligence, but in so far it may be difficult in present seeming insignificance of the symptoms, to convince the judge of the *existence of a mental disorder.*

In the *penal process* where a delict committed at a definite time is the point at issue, in the periodical psychoses it is chiefly a matter of determining whether the offense *occurred during a period of psychical abnormality or not.*

In the usually little disordered intelligence of the patient the principal stress will then be laid on the fact that the existing morbid condition of the disposition in one or another sense, or impulses, which very readily induce abnormal action (mania) or possible delusions (melancholia) have influenced the action. The proof of prior similar episodes in the individual's life and the periodicity of the manifestations will enlighten the judge.

On the whole the difficulties in the penal process are less than those in the civil question as to the *disfranchisement of periodical insane.*

The matter is *simplest* in the *circular cases* with *very short or wanting intervals;* here as soon as the disorder has attained the grade that the patient is no longer able to look after his own interests, presumably does not have the ability to act legally, *permanent disfranchisement* is proper. It is different in the circular cases with long intervals, and in simple periodical mania and melancholia which occur without essential psychical changes during the interval.

In the course of years the patients oscillate back and forth between conditions of complete or relative ability to dispose of property and those in which a testimentary capacity seems impossible.

A permanent disfranchisement would not be authorized or the lucid intervals would be successfully contested by the party concerned. In fact there is nothing else in these cases than to *repeatedly consider* the consequences of the existing condition of the testimentary capacity. Many cases of the mildest periodical maniacal excitement or mild

melancholic depression likewise occur without a disfranchisement being necessary for the relatively intelligent and quiet patients.

If in the interval a *diminution of the intellectual faculties*, a *blunting of the feelings*, a *lowering of volition*, gradually occur in the long existence of the periodical disorder, as this may be true in the milder forms, and on the *degree of this psychical enfeeblement* depends whether and how far the individual is deemed possessing testimentary capacity.

On the whole in the milder cases of periodical mental disorder the *greatest caution and diligence* are advised of the medical expert in testing and judging the matter, *in his own interests* as well; a part of the persons who do or may resort to the press owing to fancied improper disfranchisement, are individuals periodically insane, for whom in the interval, it is very easy to awaken the opinion in the laity and physicians unskilled in psychiatry, that they had never needed disfranchisement.

THE PHYSIOLOGICAL AND PATHOLOGICAL RELATIONS BETWEEN THE NOSE AND THE SEXUAL APPARATUS OF MAN.*

By JOHN NOLAND MACKENZIE, M.D., of Baltimore.

Clinical Professor of Laryngology and Rhinology in the Johns Hopkins Medical School and Laryngologist to the Johns Hopkins Hospital.

"Balnea, vina, Venus corrumpunt corpora nostra,
Set vitam faciunt, b(alnea), v(ina), V(enus)"†

Οἶνος καὶ τὰ λοετρὰ καὶ ἡ περι Κύπριν ἐρωὴ
ὀξυτέρην πέμπει τὴν ὁδὸν εἰς Ἀίδην.‡

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THE injurious effects of undue excitation or disease of the generative apparatus upon the organs of sight and hearing are matters of ancient recognition. That immoderate indulgence in venery may lead to derangements of the former was familiar to Aristotle,§ and that the fathers of medicine recognized some mysterious connection between the ear and the reproductive functions is evident from the testimony of Hippocrates.‖ Over two centuries ago Rolfinc¶

NOTE.—We make no apology for presenting almost *in extenso* this classical and entertaining address from *Johns Hopkins Hospital Bulletin*, though not in all of the its parts strictly germane to the purpose of this journal.—*Ed.*

*Remarks made before the British Medical Association at its Montreal meeting, September, 1897.

†An old inscription found in the Campus Florae in Rome. See Buecheler's Anthолog. Latin, Carmen, Epigraphic., Fasc. II, p. 705, No. 1499, Teubner edition, 1897. Also Corpus Inscript. Latin, VI, 15,258, Gruter 615, 11, Orelli 4816, etc. It is attributed, however, by Scaliger to a modern poet.

‡The supposed Greek original. See Antholog. Palatin. X, 112.

§Aristot. Opera omnia graeco-latin. Parisiis, 1854. De animalium generatione, lib. ii, cap. 7.

‖Opera omnia. Ed. Kuhn, Lipsiae, 1827, tom. i. p. 562.

¶Ordo et methodus generatione dicatarium partium, per anatomen, cognoscendi fabricam. Jenae, 1665, part i, cap. vii, p. 32.

wrote: "*Qui partibus genitalibus abutitur, et sexto praecepto vim infert, male audit,*" a proposition which has been fully established by the clinical experience of to-day.

The intimate relationship between the genital organs and those of the throat and neck seems to have attracted the special attention of the ancients. Thus Aristotle* clearly defines the changes in the voice at puberty, and the effect of castration on its qualities.† Its harsh, irregular and discordant character during the maturation of the sexual functions was furthermore affirmed to be more conspicuous in those who attempted the early gratification of the sexual appetite. The observation that, during coitus, the voice becomes rougher and less acute, led the phonasci or voice-trainers to infibulate their pupils, or confine the penis with bands and fetters, to preclude indulgence in wantonness,‡ while the popular idea of the injurious effect of repeated coition upon the singing voice is reflected in the epigram of the Roman satirist:

"Cantasti male, dum fututa es, Aegle,
Jam cantas bene; basianda non es."§

The supposed influence of sexual excitement upon the external throat is likewise apparent from the ancient nuptial

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*Op. cit., De animal. historia, lib. vii, cap. i.

Choking sensations in the throat and other hysterical manifestations have from time immemorial been regarded as signs of pregnancy. Shakespeare, in King Lear (sc. ii act iv) thus gives expression to this idea:

"O, how this mother swells up towards my heart!
Hysterica passio! down, thou climbing sorrow,
Thy element's below."

†Op. cit., De animal. generatione, lib. v, cap. 7.

‡J. Riolani Anthropographiae, lib. ii, cap. 34, p. 303, Franco-furti, 1626. Riolanus quotes from the *Musaeum* of Albertus Magnus the case of a girl, sent to fetch wine from a public house, who was seized and ravished on the road, and who found in attempting to sing on her return that her voice had changed from acute to grave.

See also Martial (lib. ix, Epig. 28):

"Jam paedegogo liberatus et cujus
Refibulavit turgidum faber penem."

Also lib. xiv, Epig. 215:

"Dic mihi, simplicitur, comoedis, et cithaedis
Fibula quid praestet? Carius et futuant."

See also Juvenal, sat. vi, 73.

The gladiators and athletes were also subjected to infibulation:

"Dum ludit media, populo spectante, palaestra,
Delapsa est misero fibula: verpus erat."
Martial, lib. viii, Epig. lxxxii.

§Martial, Epig. lib. I, xcv, ad Aeglen fellatricem.

ceremonial. Before the virgin retired on the wedding night it was customary to measure her neck with a tape and again on the following morning. If the neck showed an increase in size it was taken as a certain indication of defloration, whilst if the two measurements were equal she was supposed to have retained her virginity. This curious test, which has also been utilized to establish the fact of adultery, has been transmitted to us in the Epithalamium of Catullus:

"Non illam nutrix, oriente luce revisens,
Hesterno collum poterit circumdare filo."*

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My attention was first attracted to the investigation of the physiological and pathological relations between the nose and the genital organs by the case of a patient in London, in 1879, who invariably suffered from coryza after sexual indulgence.

Stimulated by this observation I began the study of the subject, and five years later published the results of my investigations in the American Journal of the Medical Sciences for April, 1884, in an essay entitled "Irritation of the Sexual Apparatus as an Etiological Factor in the Production of Nasal Disease." In this thesis, which was the first attempt to reduce this curious relationship to, as far as possible, a scientific basis, I advanced the series of propositions which you will find embodied in the text of these remarks.

Several years later there appeared in France a thesis by Arviset,† a critical review by Isch-Wall‡ and an excellent article by Joal,§ which dealt in a most interesting way with the topic under consideration. In Germany, Peyer in‖

*Epithal, Peiei et Thetidos, lxiv. Catulli op. omn., Lond., 1882. p. 230. This phenomenon was variously attributed to the dilatation of the vessels of the neck by the semen, a portion of which, according to the Hippocratic doctrine, flowed down from the brain during intercourse, and to the general agitation of the vascular system, and especially the arterial and venous trunks of the throat, during the excitement of the sexual act.

†Contribution a l'etude du tissu erectile des fosses nasales. These de Lyon, aout, 1887.

‡Progres Medical. Sept. 10 et 17, 1887. Du tissu erectile des fosses nasales.

§Revue mensuelle de laryngologie, d'otologie et de rhinologie, fevr. et mars, 1888. De l'epistaxis genitale.

‖Ueber nervos, Schnupfen u. Speichelfluss u. den atiologischen Zusammenhang derselben mit Erkrankungen des Sexual apparates. Münchener Med. Wochenschrift, Jahrgang 1889, No. 4.

Munich, Endriss* in Goeppingen, and, in the present year, Fliess in Berlin,† have enriched its literature with their contributions. Fleiss's elaborate monograph, written in apparent ignorance of the work done by me in this special field before him, is a model of painstaking labor, and is valuable as an independent contribution to the study of this important subject. * * * * *

In the Ayurvéda, the sacred medical classic of the ancient Hindus, a work of fabulous antiquity, the causes of common catarrh are thus tersely defined:

> "Uxoris concubitus, capitis dolor, fumus, pulvis, frigus,
> Vehemens calor, retentio urinae soecumque statim
> Catarrhi causae dictae sunt."‡

Although indulgence in venery heads the list, it is highly probable that its real influence was unrecognized, and that it is given as an etiological factor simply in accordance with the seemingly prevalent idea that pervades the Indian Shastras, that venery and confinement of the bowels lay at the root of most diseases.

The earlier physiognomists laid great stress upon the size and form of the nose as an indication of corresponding peculiarities in the penis.§ The nose, for example, that was large and firm was looked upon as an index of a penis acceptable to women, and hence it was that the licentious Emperor Heliogabalus only admitted those who were *nasuti*, *i. e.* who possessed a certain comeliness of that feature, to the companionship of his lustful practices.‖

Johanna, Queen of Naples, a woman of insatiable lust, seems also to have selected, as her male companions, men with large noses, with a similar end in view.¶ Sterne, in Tristram Shandy, depicts with consummate humor the sup-

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*Ueber die bisherigen Beobachtungen von physiologischen u. pathologischen Beziehungen der Oberen Luftwege zu den Sexual-organen. Inaug. Diss. Wurzburg, 1892.

†Die Beziehungen zwischen Nase u. weiblichen Geschlechtsorganen. Berlin, 1897.

‡Susrutas Ayurvedas; id est Medicinae Systema, a venerabili D'hanvantare demonstratum a suo discipulo compositum. Translated from the Sanscrit into Latin by Franciscus Hessler, Erlangen, tom. iii, cap. xxiv, p. 44, 1850.

§See especially Ludwig Septalius; De Naevis tractatus, sect, sect 26, p. 18, in Bonet's Labarynthi medic. extricati, etc. Genevae, 1687.

‖Vide Aelius Lampridius in vita Antonii Heliogabilis, in Hist. August, etc. Beponti.

¶Guidonis Pancirolli rerum memorabilium sive deperditarum pars prior, etc. Francofurti, 1646, lib. 2, tit. 10, p. m. 176.

posed sexuality of the nose in "Slawkenbergius's Tale," in which the city of Strasburg was captured by a handsome nose. Every one remembers the closing lines of that intensely amusing production: "Alas! alas! cries Slawkenbergius, making an exclamation—it is not the first, and I fear will not be the last fortress that has been either won —or lost by noses."

While the efforts of those who have selected men who were *nasuti* for sexual purposes were doubtless often crowned with success, history, alas! records some cases of bitter disappointment. Thus Henry Salmuth* relates with great solemnity a case in point.

Christian Francis Paulini in his curious work† devotes a chapter, under the caption *Nasuti non semper bene vasati*,‡ to the subject. After alluding to the prevalent impression that a large nose indicated a corresponding increase in volume of the virile organ, he goes on gravely to state that he has known several "noble and pious" men in whom the rule did not hold good, and relates the following mournful tale: "Nobilissima ac venustissima Virgo, sed valde petulca, duos simul habebat procos, alterum bonae vitae, fortunataeque hominum, sed macilentum; alterum quadratum, et *insigni naso* conspicuum, hirconem, ac fruges consumere natum. Illa, temto isto, hunc sibi elegit ob peculium, quod sperabat, magnum et conditionem strenuam. Sed egregie decepta est. Hinc domi jurgia, foris rixae et summa vir aversio, ob sterilitatem quae thorum perpetuo comitatur."

It was possibly the supposed influence of an elegant and handsome nose as an incentive to illicit amours that led to the well-known custom of amputation of that organ in adulterers, "*truncas inhonesto vulnere nares*,"§ whilst in women detected in the act‖ the disfigurement thereby produced was intended as a perpetual reminder of their shame.

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*Ibid p. 177.

†Observat. medico-physiog. Cent. I, obs. xcvii, p. m. 141; Lipsiae, 1706.

‡Vasatus, post-classical.

§Virgil, Aeneid, vi, 97.

‖Vide Diodorus Siculus in Bibliothecae Historicae, Paris edition, 1854, tom. I, lib. I, cap. lxxvii (5), p. 64. On the customs and laws of the Egyptians.

In astrology Venus was supposed to govern the nose.

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The charlatans of those days pretended to establish the fact of virginity or defloration by astrological signs. William Lilly, the celebrated English astrologer and impostor of the seventeenth century, claimed never to have made a mistake.* It was doubtless this method of imposture that inspired the line of Butler in Hudibras, "detect lost maidenheads by sneezing,"† in the famous poem in which he smiled the pretensions of this fraternity of quacks away.

The idea of some occult relationship between the nose and the virile member seems, in days gone by, to have crept even into the darkness of teratology. Thus we find Palfyn‡ describing cases in which in place of the nose were found masses resembling the male organs of generation.

To render the relationship to which I wish to call attention more intelligible it is necessary to recall the anatomical fact that in man, covering the whole of the inferior, the under surface of the middle, the posterior ends of the middle and superior, and, what is not sufficiently insisted upon by many writers, a portion of the septum, is a structure which is essentially the anatomical analogue of the erectile tissue of the penis. Like it, this body is composed of irregular spaces, or so-called erectile cells, separated by trabeculæ of connective tissue containing elastic and muscular fibers, the latter element being not as prominent and well-marked as in the cavernous bodies of the generative organs. Under a multitude of various impressions erection of this tissue takes place, the dilatation of its cells being, in all probability, under the direct dominion of vaso-motor nerves derived through the spheno-palatine ganglion. It is the temporary dilatation of these bodies that constitutes the anatomical explanation of the stoppage of the nostrils in coryza and allied conditions, and their permanent enlarge-

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*Life and Times of William Lilly, written by himself. London, 1829.

†Part ii, canto iii, 285. Bartholini (Anatomica Reformata, de naso: also Lond. ed., bk. iii, chap. x, p. 150) tells us that Michael Scotus pretended to be able to diagnosticate virginity by touching the cartilage of the nose.

‡Fortunus Licetus (Jean Palfyn,) Description anatomique des parties de la femme, etc., avec un traite des monstres. Leiden. 1708, lib. ii, chap. 30, p. 142 and 144.

ment is the distinctive feature of chronic inflammatory states of the nasal passages. This erectile area is, moreover, especially concerned in the evolution of the many "reflex" phenomena which are observed in connection with nasal affections. Indeed, the changes which it undergoes seem to lie at the foundation of nasal pathology, and furnish the key not only to the correct interpretation of nasal disease, but also to many obscure affections in other and remote organs of the body. For practical purposes we may consider this erectile, or contractile, area, consisting as it does, of myriad blood-vessels and blood spaces in wonderfully exquisite correlationship, bounded on the one side by mucous membrane, and on the other by periosteum, as an important organ, certainly of respiration and probably of other physiological functions, using the term organ in its highest physiological sense. Call these bodies by whatever name we may, erectile bodies, corpora cavernosa, nasal lungs, we have a definite, peculiar anatomical arrangement of tissues endowed with specific physiological function and serving a manifest and manifold destiny in the organism.

PHYSIOLOGICAL.

An intimate physiological relationship exists between the sexual apparatus and the nose, and especially the intranasal erectile tissue:

I.—(*a*) In a certain proportion of women whose nasal organs are healthy, engorgement of the nasal cavernous tissue occurs with unvarying regularity during the menstrual epoch, the swelling of the membrane subsiding with the cessation of the catamenial flow.

(*b*) In some cases of irregular menstruation, in which the individual occasionally omits a menstrual period without external flow, at such times the nasal erectile bodies become swollen and turgid as in the periods when all the external evidences of menstruation are present.

(*c*) The monthly turgescence of the nasal corpora cavernosa may be bilateral, or confined to one side, the swelling appearing at first in one side and then in the other, the alternation varying with the epoch.

(*d*) The periodical erection may be inconsiderable and

give rise to little or no inconvenience, or, on the other hand, the swollen bodies may occlude the nostril and awaken phenomena of a so-called reflex nature, such as coughing, sneezing, etc.

(*e*) In some cases there seems to be a direct relationship between this periodical engorgement of the nasal erectile bodies and the phenomena referable to the head that so often accompany the consummation of the menstrual act.

(*f*) As a natural consequence of the phenomena above described, the nasal mucous membrane becomes, at such periods, more susceptible to reflex-producing impressions, and is therefore more easily influenced by mechanical, electrical, thermic and chemical irritation.

(*g*) The conditions (engorgement and increased irritability of the nasal mucous membrane) indicated above, together with the phenomena that accompany them, are also found during pregnancy at periods corresponding to those of the menstrual flow.

During the period of my original investigations I was unable from poverty of material, to come to any definite conclusions in regard to the behavior of the nasal apparatus during pregnancy. I was familiar with the fact that in some women the presence of pregnancy was proclaimed by a cold in the head. Isolated cases, too, had led me to the belief that the changes such as I described in my first article occurred in some women, at least, during that period at intervals corresponding to those of the menstrual flow, but at the time of publication of my essay I was not as sure of the fact as I am now. Since my work first appeared I have been so busied with other things that I have given little or no time to the subject. Several cases have, however, offered themselves to me which have confirmed me in the belief that sometimes, at least, the phenomena described by me as occurring during menstruation also occur in pregnancy at periods corresponding to those of the monthly flux. Not to mention others, I have, for example, at present under my care a young pregnant married woman, without any disease of the nasal passages, who with great regularity during the time at which her

menses are due (from the 13th to the 17th of every month) suffers from acute and complete obstruction of both nostrils, intense sensitiveness of the nasal mucosa and violent paroxysms of sneezing. These phenomena commence on the 13th, reach their acme by the 15th, and gradually subside, to disappear on the 17th of the month. During the intervals between the periods there is no abnormal condition of the nose present. Indeed, it was for this peculiar, disagreeable feature of her pregnancy that she consulted me, with a very accurate voluntary description of her symptoms. This condition of affairs has continued during three pregnancies. If other proof were wanting of the fact that menstrual phenomena referable to the nose occur during pregnancy, the question has been definitely settled by Fliess, who has shown that they not only occur during that period, but also during lactation. This author also reports several cases in which abortion was accidentally produced by galvano-caustic operations on the nose. In this connection I would call attention to the fact that Pliny* observes that the smell of a lamp which has been extinguished will often cause abortion, and that the latter ensues should the female happen to sneeze just after the sexual congress.

II.—The presence of vicarious nasal menstruation.

(*a*) It is a familiar fact that women are occasionally found in whom the menstrual function is heralded or established by a discharge of blood from the nostrils. This hemorrhage, which may be accompanied by other phenomena referable to the nose, such as sneezing, etc., may be replaced afterwards by the uterine flow, but sometimes continues throughout the menstrual life of the individual. In the latter case, some malformation or derangement of the sexual apparatus seems to be, usually, though not always, responsible for the nasal flow.

(*b*) Epistaxis also occurs, now and then, from the suppression of the normal flux. This was considered as a favorable sign by Hippocrates,† and by Celsus,‡ who followed closely in his footsteps.

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*Nat. His. lib. vii, cap. 7.

†Op. omn. Ed. Kuhn. Lipsiae, 1827, tom. ii, p. 174. De morbis lib. i, and Aph, Sect 5, art. 33.

‡De medicina. Rotterodami, 1750, lib, ii, cap. 8.

that this form of sexual consensus, or sympathy, has been recognized for centuries. Thus in the sixteenth century, Amatus Lusitanus* reports a case of sneezing from the sight of a pretty girl; Bonet† and Thomas Bartholini,‡ and later, Spalpart Vanderwiel,§ relate cases of sneezing during coitus. In the last century Schurig,‖ following Bartholini, and at the commencement of the present, Gruner,¶ give sneezing as one of the signs of pregnancy. Gruner** states that the nose becomes warm and red in the hysterical, in women at the menstrual period and in the victims of onanism.

Isolated cases of sneezing at the menstrual period are found scattered here and there in older medical literature. Thus Garmanus†† and Lanzonus‡‡ report cases of this kind, Delius§§ a case of sneezing following the suppression of the menses, while Petzold‖‖ relates one in which sneezing occurred every day during the whole of pregnancy. Paullini¶¶ records a case in which the menses were brought on

*Curationum medicinalium cent. iv, cur. 4, Venet. 1557. See also Rahn. Exercit. phys. de causis physicis mirae illius tum in homine, tum inter homines, tum denique inter cetera naturae corpora sympathia, xvii, Turici 1788.

†Sepulchretum. L. I, s. xx.

‡Historiarum anatomic. et medic. rariorum, cent. v et vi, ed. Hafniae, 1761, v, p. 184.

§Gynaecologia historico-medica, etc. Dresden and Leipsic, 1730, p. 429.

‖Observations rares de medecine etc, (quoted by Deschamps, Traite des maladies des fosses nasales et leur sinus. Paris, 1804, p. 88.)

¶Physiologische u. pathologische Zeichenlehre, etc. Jena, 1801, p. 122.

**Ibid., p. 327. Several of the older writers refer to a case of "pituitous and serous catarrh" from coitus, reported by Georg Wolfgang Wedel (see Schurig, Spermatologia historico-medica, etc. Francofurti ad Moenum., 1720, p. 280), but I have been unable to obtain the original account of the case. John Jacob Wepfer, Observationes medico-practicae de affectibus capitis internis et externis, Schaphusii, 1728, obs. lvii (see my essay, The Pathological Nasal Reflex, an Historical Study. Transactions of the American Laryngological Association, 1887; also N. Y. Medical Journal, August 20th, 1887), mentions a case of hemicrania, tinnitus aurium and vertigo associated with uterine trouble, sneezing and a nasal discharge, but few particulars are given.

It is interesting in this connection to recall the admonition of Celsus to abstain from warmth and women at the commencement of an ordinary catarrh. (Op. cit., lib. iv, cap. 2, § 4, "ubi aliquid ejusmodi sentimus, protinus abstinere a sole, a balneo, a venere debemus.") Hippocrates, on the other hand, relates the following case: "Timochari hieme distillatione in nares praecipue vexato, post veneris usum cuncta ressicata sunt, lassitudo, calor et capitis gravitas successit, sudor ex capite multus manabat." Op. cit., De morbis vulgaribus, lib. v (tom. iii, p. 574). The expression "bride's cold" would seem to indicate on the part of the laity the suspicion of a causal connection between repeated sexual excitement and coryza.

††Ephemerid, nat. cur. Dec. ii, An. viii, obs. 152.

‡‡Ibid., Dec. iii, An. ii, obs. 32.

§§Act. nat. cur., vol. viii, obs. 108.

‖‖Ephem. nat. cur. Dec. iii, An. v, vi, obs. 183. See also Rahn, op. cit., p. 34.

¶¶Op. cit., cent. iv, cap. xlviii.

(*c*) Hemorrhage from the nose may occur as the vicarious representative of menstruation during pregnancy; towards the close of menstrual life as the premature or normal herald of the menopause; or it may be observed as a recurring phenomenon after the establishment of the change of life or after the removal of the uterus or its appendages.

(*d*) These vicarious hemorrhages are, moreover, not confined to women, but make their appearance not infrequently in boys at or near the age of puberty, upon the full development of their sexual powers.

III.—*The well-known sympathy between the erectile portions of the generative tract and other erectile structures of the body.*

There is no reason why the sexual excitement that leads to congestion and erection of these organs, as for example in the case of the nipple, may not, under similar circumstances, cause engorgement of the nasal erectile spaces.

IV.—The occasional dependence of phenomena referable to the nose during sexual excitement (such as, for example, nose bleed, stoppage of the nostrils, sneezing and other reflex acts), either from the operation of a physiological process, the *erethism* produced by amorous contact with the opposite sex or during the consummation of the copulative act.

The nasal symptoms most commonly found associated with sexual excitement are sternutation, occlusion of the nasal passages (from erection of the corpora cavernosa), and epistaxis.

Sneezing is sufficiently common, particularly during coitus. Quite a number of such cases have come under my personal observation in persons in robust health and whose nasal organs were apparently free from disease. The reflex may occur before (from erotic thoughts), during, or after the consummation of the act. Many like cases have been since reported to me. Thus one physician of large practice, who became interested in the subject, found twelve cases among his clientele. It may be interesting to know

by sternutatories, and quotes Fabricius Hildanus as having noted copious menstruation follow violent and immoderate sneezing.

Sudden and complete occlusion of both nostrils sometimes occurs with regularity during coitus. This phenomenon, which may be accompanied by so-called "reflex" phenomena, such as, for example, asthmatic attacks, is doubtless due to sudden dilatation of the erectile bodies from paralysis of their vaso-motor nerves; for as Anjel* has shown, during coitus the nervous shock is distributed to the whole vaso-motor system of nerves and is not confined to the erection center.

Cases have also been reported in which the act of coitus was accompanied by hemorrhage from the nose (Isch-Wall, Joal.)

V.—The reciprocal relationship between the genital organs and the nasal apparatus is furthermore illustrated by the occasional dependence of genito-urinary irritation upon affections of the nasal passages. Retarded sexual development, too, may possibly depend upon the co-existence of nasal defect.† Unfortunately there are no authentic cases in literature in support of this latter hypothesis, but in this connection I would like to call attention to the remarkable case reported by Heschel (Wiener Zeitschrift für pract. Heilkunde, März 22, 1861), in which imperfectly developed genital organs were associated with absence of both olfactory lobes. The man was well developed, with the exception of the testes, which were the size of beans and contained no seminal canals, and the larynx, which was of feminine dimensions. All trace of olfactory nerves was absent, as were also the trigona olfactoria and the furrow on the under surface of the anterior lobes. There was scant perforation of the cribriform plate which transmitted the nerveless processes of the dura mater. There was also an absence of nerves in the nasal mucosa.

VI.—It is, finally, quite possible that irritation and congestion of the nasal mucous membrane precede, or are the

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††Archiv fur Psych., Bd. viii, Heft 2.

*See Elsberg, Archives of Laryngology, Oct., 1883.

excitants of, the olfactory impression that forms the connecting link between the sense of smell and erethism of the reproductive organs exhibited in the lower animals and in those individuals whose amorous propensities are aroused by certain odors that emanate from the person of the opposite sex.

Through all the centuries the season of flowers—the springtime—has been celebrated in amatory song and story as the season of love and of sexual delight. This conceit, handed down to us from the poets of antiquity, finds modern expression in the glorious verse of Tennyson:

"In the Spring a fuller crimson comes upon the robin's breast;
In the Spring the wanton lapwing gets himself another crest;
In the Spring a livelier iris changes on the burnish'd dove;
In the Spring a young man's fancy lightly turns to thoughts of love."

Woman, in all the ages, from the perfumed courtesan of ancient Babylon to her reflected image in the harem of the Sultan to-day, has appealed to the olfactory sense to bring man under her sexual dominion and to fire his passionate desire.

In the Song of Solomon, in the *Artes amoris* of the older writers, in the fetich worship of odor, in the picture of Richelieu surrounded by an atmosphere of dense perfume in order to stimulate his amorous feeling, is reflected the idea of the possible power of olfactory perception in awakening sexual thoughts. If you doubt that modern man has not forsaken this idea, read Zola,* Lombroso, Tolstoi, Nordau.

Rosseau has aptly termed olfaction the sense of the imagination, and if we reflect how intimately related it is to the impressions we form of external objects, how it affects our emotions and influences our judgment, the clever definition of the French philosopher becomes all the more striking and felicitous.†

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*See especially a work by Leopold Bernard, Les odeurs dans les romans de Zola. Montpellier, 1889.

†Of great interest is the influence which civilization exerts upon the development and impressibility of the olfactory sense. Without enumerating, much less elaborating, the myriad conditions that conspire to produce such a result, we may safely lay dowh the general proposition that the physical and moral forces of civilization—the social and intellectual environment of the subject—exert a marked effect upon the olfactory faculty by inviting or encouraging disturbance of the sentient and perceptive apparatus; that the higher we

While it is undoubtedly true that olfactory impression in man, under natural conditions, plays a subordinate part in the excitement of sexual feeling, while it may be also true that such intensification or perversion of the odor sense may indicate an abnormal condition and a reversion to the purely animal type, still the fact is incontestable that many persons are attracted sexually to each other through the sense of smell. Both history and fiction are full of such examples.

In connection with this part of the subject it is interesting to note the extraordinary degree of nervous sympathy that may be developed through the sense of smell. Millingen,* for example, relates the case of a pensioner in the Hospital for the Blind in Paris, called *Les quinze Vingt*, who by the touch of a woman's hands and nails and their *odor* could infallibly assert if she were a virgin. A number of tricks were played on him and wedding rings were put on the fingers of young girls, but he was never at fault.

As in the lower animals it is possible or even probable that the alternate inflation and collapse of the erectile bodies is, to some extent at least, the means by which the the grateful or ungrateful odorous particles are excluded from, or admitted to contact with, the apparatus of special sense, so in men in whom this sense is sexually excited or perverted, either normally, or from defect in the subjects themselves, the reception or rejection of the sensuous odors may be accomplished by a similar mechanism.

These facts point conclusively to an intimate physiological association between the nasal and reproductive apparatus, which may be partially explicable on the theory of reflex or correlated action, partially by the bond of sympathy which exists between the various erectile structures

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ascend in the social scale, the more readily our judgments are unnaturally influenced or perverted by impressions derived through the sense of smell, and that the more we recede from the inferior orders, the less perfect and acute this faculty becomes, the more susceptible to irritation and the more predisposed to disease. In view, therefore, of the importance of olfaction as an avenue through which our mental impressibility is influenced—our imagination perverted—and in view of the relations of civilization to the sense of smell, we can readily understand why it is that this faculty is found more frequently deranged among the superior orders than in those lower down in the social scale and in the savage state.

*Millingen. The Passions, or Mind and Matter, etc. London, 1848, p. 102,

of the body. That a relationship exists by virtue of which irritation of the one reacts upon the circulation and possibly nutrition of the other, is accordingly rendered highly probable by the evidence of clinical observation.

If this excitation be carried beyond its physiological limits there comes a time sooner or later when that which is a normal process becomes translated into a pathological state, according to a well-known law of the economy. Hence it is *a priori* conceivable and eminently probable, not only that stimulation of the generative organs, when carried to excess, may become an etiological factor in the production of congestion and transient inflammation of the nasal passages, and especially of their cavernous tissue, but that repeated and prolonged abuse of the function of these organs may, by constant irritative influence on the turbinated tissue, become the starting point of chronic changes in that structure.

PATHOLOGICAL.

I.—In a fair proportion of women suffering from nasal affections, the disease is greatly aggravated during the menstrual epoch or when under the influence of sexual excitement.

II.—Cases are also met with in which congestion or inflammatory conditions of the nasal passages make their appearance only at the menstrual period, or, at least, are only sufficiently annoying at that time to call for medical attention.

III.—Occasionally the discharge from a nasal catarrh will become offensive at the menstrual epoch, losing its disagreeable odor during the decline of the ovarian disturbance. In many cases of ozoena, the fetor is much more pronounced at times corresponding to those of the menstrual flow.

IV.—Excessive indulgence in venery sometimes seems to have a tendency to initiate inflammation of the nasal mucous membrane, or to aggravate existing disease of that structure. There are those, for example, who suffer from coryza after a night's indulgence in venereal excesses, and

the common catarrhal affections of the nose are undoubtedly exaggerated by repeated and unnatural coition.

V.—The same is true in regard to the habit of masturbation. The victims of this vice in its later stages are constantly subject to nose-bleed, watery or mucous discharge from the nostrils, and perversion of the olfactory sense.

VI.—The co-existence of uterine or ovarian disease exerts sometimes an important influence on the clinical history of nasal disease. This fact has been shown in practice in cases in which the nasal affection has resisted stubbornly all treatment and in which it has only been relieved upon the recognition and appropriate treatment of the disease of the generative apparatus.

The recent researches of Fleiss seem to indicate that the converse of this proposition is true.

The most commonly found conditions of the nasal apparatus following perverted sexual excitement, either from excessive venery or onanism, are: (1) coryza (generally of vaso-motor type), with or without reflex manifestations, such as asthma, paroxysmal sneezing, etc. (2) epistaxis, and (3) various forms of perversion of the sense of smell. In addition to these, Peyer has observed abnormal dryness of the nasal and pharyngeal mucous membrane, indicated by a feeling of dryness and burning in these regions and by complete cessation of secretion.

The coryza that follows intemperate venery resembles in character that seen in the disease falsely called "hay fever," and, like it, is generally associated with more or less pronounced neurasthenia, or shall we say, localized hysteria. In other cases the nervous system is not apparently involved. The predominant temperament, however, in individuals thus affected is the neurotic. While they may not necessarily in some instances belong to the so-called "nervous" or "hysterical" individual, while they may give no outward and visible sign of a deranged nervous system, there will generally be found, on careful examination, a delicacy or sensitiveness of the nervous apparatus either in whole or in part.

It is conceivable that this sexual coryza may be associated with almost any of the so-called reflex neuroses. In one of my cases asthma was the central symptom. A young married woman, twenty-three years old, in otherwise apparently perfect health, consulted me for the relief of attacks of asthmatic breathing associated with stoppage of the nostrils. I could find nothing wrong at the time of consultation with the respiratory apparatus, and her other organs were in perfect condition. Reluctantly she confessed that every night for five years she and her husband had indulged in intemperate venery. Moderation in their sexual relations caused rapid disappearance of the symptoms, and in the nine years that have elapsed since she consulted me there has been no return of the disorder.

Interesting cases of asthma of nasal origin associated with, and due to sexual excitement have also been reported by Joal and Peyer. In this connection I would recall a case of periodic vaso-motor coryza reported by me at length elsewhere,* in which the attacks invariably appeared and were most severe at the menstrual period, appearing sometimes at its commencement, sometimes at its close. In the attacks coming on in the interval between the monthly periods pain was always felt in the left ovary. Residence at the seashore invariably gave relief, except during menstruation, when the attacks were as bad as when at home. The outbreak of the disease at the menstrual epoch in this case is readily explained by the physiological erection of the corpora cavernosa which occurs at that period. In this particular case the chief, and under certain circumstances the sole excitant of the paroxysm was the utero-ovarian excitement of the menstrual epoch.

Nose-bleed is not infrequently the result of onanism. Years ago Du Saulsay† called attention to the fact that enormous quantities of blood can be lost from the nose from the practice of this vice, and the accuracy of his observa-

*A contribution to the study of coryza vasomotoria periodica, or so-called "hay fever," N. Y. Med. Rec., July 19, 1884.

†Comment. de rebus in med. etc., vol. xvii, p. 213. Michell, in Schlegel's "Sylloge selectiorum opusc. de mirabile sympathiae quae partes inter diversas corporis humani intercedit." Lipsiae, 1787. ‡l. c.

tion is borne out by the experience of subsequent observers. Among others, Joal‡ has collected several such cases and reports three of his own. One of his patients informed him that he masturbated to excess to provoke nose-bleed, which relieved him from violent headaches from which he suffered.

Whether the hemorrhages in these cases—which by the way are not confined to the male sex*—come from simple acute distension of the intra-nasal blood-vessels, or whether definite chronic structural changes have taken place in the mucous membrane and in the vessel walls, are points which are as yet undetermined. The probability is that some intra-nasal lesion is responsible for them, for, as I have pointed out elsewhere,† the discharge from the nostrils and the perverted olfactory sense found in the later stages of onanism are often simply the outward expression of chronic nasal inflammation.

The nature of the perversion of the olfactory sense in onanists will vary with the character of the nervous condition produced by the vice—hyperosmia, hyposmia, parosmia and allotriosmia have all been observed in cases of immoderate sexual excitement.

The investigations of Fleiss would seem to indicate that painful, profuse and irregular menstruation may in some instances depend upon an intra-nasal cause. He cites a number of cases to show that the pain of certain forms of dysmenorrhœa may be temporarily dissipated by the application of cocaine to the nasal mucous membrane, or permanently controlled by cauterization. According to him, only the inferior turbinated body and the tuberculum septi possess a special relation to the dysmenorrhœic pains. These two localities he accordingly designates as κατ' ἐξοχήν, genital zones (Genitalstellen). If the tuberculum septum be cocainized, the hypogastric pains disappear. Cocainization of the right nostril causes disappearance of the pain on the left side of the body and *vice versa.*

In answer to the objection that these phenomena may

*See case of Lemarchand de Trigon (girl of 16), quoted by Joal.

†l. c.

be due to the general anaesthetic action of the drug, he points out the fact that cocaine absorbed into the blood does not produce a general analgesic effect, as is produced in the case, for example, of morphia. On the contrary, in small doses it acts as a stimulant. The fact that pain ceases *only* when the genital zones are cocainized and that it may be permanently dissipated by cauterization of this area, does away, he thinks, with the assumption that the subsidence of the pains is a part of the euphoria produced by the drug. The fact alluded to above, that in cocainization of certain parts of the genital zones only individual pains disappear from the symptom complex, militates against the supposition of a simple, general narcotic effect.

I cannot vouch for or deny the accuracy of the above statements, as Fliess's monograph has just come into my possession and I have had neither time nor opportunity to put them to the test. Curiously enough, the genital zones of Fleiss correspond exactly with the most sensitive portions of the sensitive reflex area mapped out by me in 1883.*

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*On Nasal Cough and the Existence of a Sensitive Reflex Area in the Nose. America, Journal of the Medical Sciences, July, 1883, The results of these experiments were first brought before the Baltimore Medical Association in the early part of 1883, and subsequently before the Medico-Chirurgical Faculty of Maryland (April, 1883, *vide* Transactions) and the American Laryngological Association (May, 1883 *vide* Transactions). The conclusions reached from these investigations were as follows:

"(1) That in the nose there exists a definite, well-defined sensitive area, whose stimulation, either through a local pathological process, or through the action of an irritant introduced from without, is capable of producing an excitation which finds its expression in a reflex act or in a series of reflected phenomena.

(2) That this sensitive area corresponds in all probability with that portion of the nasal mucous membrane which covers the turbinated corpora cavernosa.

(3) That reflex cough is produced only by stimulation of this area, and is only exceptionally evoked when the irritant is applied to other portions of the nasal mucous membrane.

(4) That all the parts are not equally capable of generating the reflex act, the most sensitive spot being probably represented by that portion of the membrane which clothes the posterior extremity of the inferior turbinated body and that of the septum immediately opposite.

(5) That the tendency to reflex action varies in different individuals, and is probably dependent upon the varying degree of excitability of the erectile tissue. In some the slightest touch is sufficient to excite it; in others, chronic hyperæmia or hypertrophy of the cavernous bodies seems to evoke it by constant irritation of the reflex centers, as occurs in similar conditions of other erectile organs, as for example the clitoris.

(6) That this exaggerated or disordered functional activity of the area may possibly throw some light on the physiological destiny of the erectile bodies. Among other properties which they possess, may they not act as sentinels to guard the lower air passages and pharynx against the entrance of foreign bodies, noxious exhalations and other injurious agents to which they might otherwise be exposed?

Apart from their physiological interest, the practical importance of the above facts from a diagnostic and therapeutic point of view is sufficiently obvious. Therein lies the explana-

I have, on innumerable occasions,* shown that phenomena widely different in character and anatomical sphere of operations may be produced at will by artificial stimulation of this area, and that they may be dissipated by local applications to, or removal of, the membrane covering the diseased surface. It is therefore not difficult to conceive that the phenomena referable to the uterus and ovaries during menstruation may be influenced in a similar manner. The specific relations of the two zones and the crossed action of the reflex, if such it be, are much more difficult of explanation. If such a condition of affairs exists, it is certainly a remarkable phenomenon.

These observations, therefore, encourage the belief, if they do not establish the fact, that the natural stimulation of the reproductive apparatus, as in coitus, menstruation, etc., when carried beyond its normal physiological limits, or

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tion of many obscure cases of cough which heretofore have received no satisfactory solution, and their recognition is the key to their successful treatment."

In calling attention to this area as containing the spots most sensitive to reflex-producing impressions, I did not, nor do I now (as has been wrongly inferred), desire to maintain that pathological reflexes may not originate from other portions of the nasal mucous membrane. Indeed, wherever there is a terminal nervous filament it *may* be possible to provoke sneezing, lachrymation and other reflex movements. My contention is simply this, that the area indicated in my original paper represents by far the most sensitive portion of the nasal cavities, and that pathological reflex phenomena are in the large majority of cases related to diseased conditions of some portion of this sensitive area. That all pathological nasal reflexes arise from irritation of this particular area is a proposition which I do not, and never have maintained. The determination of these sensitive areas is of special importance and interest in the solution of the pathology of the so-called nasal reflex neuroses. Whether a special sensitiveness in certain portions of the nasal mucous membrane exists or not, the agitation of the question has led to more rational methods of procedure in the treatment of a large class of nasal affections, and to more conservative methods in intra-nasal surgery. Before the location of the sensitive area or areas, the nasal tissues were destroyed with an almost ruthless recklessness that bade fair to bring intra-nasal surgery into the worst repute. (For an elaborate discussion of this whole subject see article by the author in Wood's Reference Handbook of the Medical Sciences, edited by Buck, Wm. Wood & Co., N. Y., 1887, vol. v, pp, 222-242.)

*My books upon this subject may be found in the following publications: A contribution to the study of coryza vaso-motoria periodica or so-called "hay fever," N. Y. Med. Record, July 19, 1884. Coryza vaso-motoria periodica in the negro, with remarks on the etiology of the disease, N. Y. Med. Record, Oct. 18, 1884. Rhinitis sympathetica, essay read before Clin. Soc. of Md.; see brief abstract in Md. Med. Journal, April 11th, 1885, and in Internationales Centralblatt f. Laryngologie, etc., Sept., 1885. Observations on the origin and cure of coryza vaso-motoria periodica, Trans. Medico-Chir. Faculty of Maryland, 1885. Review of Morell Mackenzie's essay on hay fever, etc., The American Journal of the Med. Sciences, Oct, 1885, p-p. 511-528. See also discussion of the subject before the American Laryngological Association (May 14th, 1884, vide Transactions, p, 113 et. seq.) See also cases of reflex cough due to nasal polypi, Trans. of the Medico-Chirurgical Faculty of Md., 1884, and articles in Wood's Handbook already referred to.

pathological states of the sexual apparatus, as in certain diseased conditions, or as the result of their over-stimulation from venereal excess, masturbation, etc., are often the predisposing, and occasionally the exciting causes of nasal congestion and inflammation and perversion of the sense of olfaction. Whether this occur through reflex action, pure and simple, or as a sequel of an excitation in which several or all of the erectile structures of the body participate, the starting point of the nasal disease is, in all probability, the repeated stimulation and congestion of the turbinated erectile tissue of the nose. It is highly probable that this erectile area, or organ, so sensitive to reflex-producing impressions, is the correlative of certain vascular areas in the reproductive tract, and that the phenomena observed may therefore be explained by the doctrine of what we may call, for want of a better name, reflex, correlated action.

In these remarks I have attempted no thoroughgoing exposition of the subject, but simply laid before you the results of my personal labors. These no longer represent, I am glad to say, the result of solitary observation and isolated experience. I have not attempted, as Fliess has done, to touch upon the biological side of the question.

The study of the relations between the nose and the sexual apparatus opens up a new field of research, of pleasing landscape and almost boundless horizon, which bids to its exploration not only the physiologist and pathologist, but also the biologist. Above all it brings us face to face with a serious problem of life, an interesting enigma, whose significance it will be the task of the future to divine.

ALCOHOLIC EPILEPSY.

A Wrong Theory Misapplied to the Case of Arthur Deustrow.

By DR. C. H. HUGHES, St. Louis.

IN the *Quarterly Journal of Inebriety* (Vol. xx, No. 3) appears an article* in which psychologic truth and error are blindly mingled and the author seems much mentally mixed in his psychiatry, too much confused concerning the true data of practical alienism to be the Corypheus he assumes to be on the subject of alcoholic automatism or indeed upon the subject of epilepsia in any form, to say nothing of its psychical equivalent or substitutive states, the most difficult and abstruse subject in psychological medicine; one which the novice in psychiatry and the veteran in neurology alike hesitate to tackle. But there are times and places in morbid mental science, as in the realm of theological disquisition, when and where "fools rush in where angels fear to tread."

The author, apparently under the dominant delusion that he is one of the distinguished denizens of the House-boat on the Styx, calls up the ghost of a medico-legal *casus celebre* and discusses the ignoble hero of that trial, Arthur Deustrow, in a new light, a light in which he never appeared when he walked the earth as fiendish and unprincipled a murderer as ever justly "felt the halter draw," with vicious fiend's "opinion of the law."

In this remarkable post mortem production the Duestrow case is considered "a good example of epileptic insanity." "The case shows," the author says, "the powerful influence, environment and heredity exert in certain cases."

*By Dr. William Lee Howard.

The influence of heredity is all right enough when invoked to establish insanity. But when a man assuming to be an alienist capable of solving grave and obscure problems of mental alienation, invokes environment to prove his case, he gives himself away logically and psychologically speaking. The insane man is the man, of all others, who is out of harmony with his environment and acts counter to them. A statement like this is the *lapsus* of a novice in psychologic science.

"Duestrow's mother," this record goes on to state, "was the daughter of a saloon-keeper," but not a drunkard saloonkeeper or an insane saloonkeeper, which this record does not state. "This daughter," continues the record, "was in the habit of drinking (beer omitted by the record) at her father's place (home omitted in the record). His (Deustrow's) father was also an habitual user of alcoholic drinks (beer omitted)." In short, they were beer drinking Germans —as most Germans are. As Bismarck is and von Moltke was. And as some gentlemen of *die Vaderland* among my acquaintance are, who could give this young man, Howard, sounder views, in spite of their beer-embarrassed brains, than was ever held by the clearest head of "all the Howards." But this dreadful record continues. "The alcoholic (beer beverage) habit continued throughout the lives of both parents, and the son, Arthur Deustrow, was given beer to drink when an infant," and his mother was probably given beer to drink when she was carrying Arthur. This was horrible? though the record omits it. But if every boy who while a babe got a little beer or ale, or suckled breasts from mothers who were given beer or ale to make milk in the breasts, must have alcoholic epilepsy, what is to become of the German and English nations? Shade of Kaiser Wilhelm der Gross, what is to become of *Deutschland und Bavaria?* where an average of fifty gallons of beer per capita is drunk.

"When Duestrow was 13 his father became suddenly wealthy" and Arthur "commenced a series of dissipations which continued up to the time he committed his repulsive crime." This is not strictly correct. Duestrow's series of

dissipations did not begin so soon. Duestrow was much like other boys would be and are under circumstances of little restraint and gradually increased self-indulgence.

As he grew older he had means allowed him for indulging in the vicious life of a large city. He drank beer at times to excess, but was not a hard drinker. He indulged in immoral dissipations, went to theatres, to houses of ill-fame after he had passed puberty, to the neglect of his work at medical college. He never graduated. But he was not a violent hard drinker. He drank more beer than was good for him and did other things in the line of self-indulgence that were not good for his morals. He was dissolute and gradually descended in the vicious indulgences of his kind. But he had never had delirium tremens or brought on himself an epileptic fit by excessive indulgence in drink or venery, and had no history of syphilis or traumatism and no epileptic record.

This is a pretty rough outline sure. Rough on "the truth of history," rough on genuine honest psychiatry, if a diagnosis of epileptic insanity can be thus easily made.

Now, here are the facts on this point from the sworn testimony: Duestrow had come to his house fresh from the bosom of his mistress, who had told him his wife was untrue to him and his child was a bastard. He had come in a sleigh to redeem a promise his wife had exacted of him to take her a ride. He was under the influence of drink but in no sense beastly intoxicated. He was sober enough to remember his promise and to keep it, and to remember the hour. He remembered to bring some toys to his child which he had promised the mother to get and he brought them, but he had come to the house in a bad humor because he wanted to be elsewhere, but had reason for complying with his wife's wishes about the ride. He had spoken to his child not unkindly before leaving the house. The servant girl met him at the door. They had some words. She was too familiar with him and offended him so that he began striking her in the front hall. He pulled out his revolver and flourished it, threatening to shoot. The girl ran away and he did not shoot at her. The quarrel attracted

the wife's attention upstairs. The wife called down, "Arthur, let the girl alone. It is my fault. Come up and strike me; you are drunk."

To this the murderer responded by running upstairs, revolver in hand, exclaiming, "I'll show you who is drunk." He then assaulted his wife with his fist, saying she kept a whore-house. As his anger rose with the resistance of his wife and the excited state of his brain from alcohol, he shot her and his child. All the chambers of his revolver were not empty, but he kept some for self defense, if necessary, during or after the homocide.

Here is some more of the erroneous record upon which this pseudo expert proposes to establish what he miscalls the Scientific Status of the Duestrow Case:

"On the day he murdered his wife and child he was playing with the child (of whom he was very fond), when he suddenly pulled a pistol from his pocket, shot his wife, and then picked up his child and fired two bullets into the little one's brain. He walked out hatless, and was found on the street in a dazed condition. He went quietly to the police station and there made several contrary statements." "Such in rough outline," says Dr. Howard, "is a typical case of alcoholic epileptic mania." There is nothing typical in it!

Before attempting to escape, and after stooping over his wife and calling "Tina, are you dead?" to make sure of his work, she making no response, Duestrow picks up his hat, conceals his revolver, which he still carries with him, and leaves the house.

Does he wander aimlessly, dazed and uncertain what to do, or fall in a fit the culmination of epileptic violence or has a fit preceded the violence, or had he ever had one that any one knew of before the tragedy or since? No! No! Follow him! He goes with all his clothing on and properly adjusted as quickly and as directly as he can to the nearest police station and surrenders himself, getting into a wagon going that way to expedite his going. The driver suspects nothing from his demeanor, so set and self-equipoised is he in his voluntary determination to keep his own

counsel and surrender himself safe from any immediate consequences of his crime. Neither epilepsy nor drink have obscured his cunning nor obliterated the consciousness and memory of the deed. What does he do now? He surrenders himself to the officer and says: "I have shot my wife and child by accident. I went to give my wife my revolver and it went off and killed her and wounded the child. Send for my attorney, and I wish to give bail. I am wealthy; can give a million dollars security, if necessary," a boastful verity and no delusion.

Shade of the mighty Caspar! Shades of Echeverria and Ray and that host of great and honest alienists who have gone to that realm where psychological error ceases from troubling, and honest psychiaters are at rest, but isn't it rough on true psychiatry to call such state of inebriate passion without element of mental obscurity, alcoholic epilepsy?

But this brilliant meteor in the firmament of psychological medicine goes on. Hear him and tremble for the sandy foundations of your knowledge; ye who think you know something of the real nature of epilepsy and epileptic and epileptoid states:

"An epileptic maniac, after committing a crime, when arraigned in court will admit his crime, but when, some months later, he is brought to trial he denies knowing anything about the crime. It is a common thing for epileptics to give some inconsistent excuses for their action; they have no accurate knowledge of what has happened, but a vague and indefinite idea and try to excuse their conduct by illogical stories."

Here is a description intended to fit the writer's misconceptive of at least one of the cases, that of Duestrow. Duestrow not only admitted his crime at the time of the crime but explained it in the most logical, but untruthful, manner then and later in jail to me. He told me some months after the deed, as I testified at the trial, that he was drunk at the time he killed his wife and child and did not know what he was doing. But he did know what he was doing or had done, for he immediately after, told all

about it, to those who had heard of the murder, and just as it had occurred and when and where, except his extenuating explanation that it was an accident.

Had he been suddenly seized with the impulse to kill after the usual manner of epileptics, he would not have recovered so completely and so soon, so as to make the explanation of "accident." This was the most plausible and most exculpative, for it promised best for his chances of subsequent escape from the legal consequences of his crime. No one witnessed the killing. He had scared away the only possible witness; she was down stairs. The deed was done up stairs. The shots were heard. The shooting was not seen by others than the principals in the tragedy. Had he not been in a previous passion, the plea of accident had passed for more. Had he not been in a passion gradually rising to the pitch of frenzy, the plea of epilepsy might have been more plausible, though unsustained by previous or after paroxysms.

But here is some more light thrown by this novice in neurology and amateur alienist, on epilepsy, the light of an *ignis fatuus* to mislead the unwary neurologic traveler who trustingly follows the false illumination of his pathway to knowledge:

"A careful study of individuals who have had attacks of epileptic mania would show an abnormal condition of mind and morals in early life, physical timidity except when fortified by alcohol, apprehensions of all vague and indefinite happenings, and an existence, both mental and physical, unnatural to normal human beings."

A careful study of individuals who have had attacks of epilepsy may or may not show an abnormal condition of mind and morals in early life, and they are not always noted for physical timidity (I do not know what the author means by physical timidity) except when fortified by alcohol. Shade of Julius Caesar who fell convulsed in the market place at Rome and of the epileptic Napoleon and Mohamet, what does our author mean by this and by the rest, "apprehensions of all vague and indefinite happenings, and an existence, both mental and physical, unnatural to

normal beings"? Oh *epilepsia procursiva* of my old tom-cat who getteth a fit when thy head getteth hot under the stove, now I know why the character changeth and thou meweth. "Apprehensions of all vague and indefinite happenings" and hath "an existence, both mental and physical, unnatural to normal" feline beings, and so in the house-top and under my window disturbeth my peaceful slumbers. It is "the abnormal condition of thy mind and morals in early life." Tom, only for thine epilepsy and its dire antecedents, I had shot thee long ago to death!

But here is one paragraph among this singular and largely untruthful word portraiture of epilepsy, which is nearer the truth but it does not fit Duestrow. The whole drapery of the picture as a painting of Duestrow is a misfit. The colors are bad, the brush is unskilfully handled and the background is scarcely a decent shadow of the truth.

"In alcoholic epileptic insanity the period of anger is preceded by a calm attitude; then comes the sudden period of ferocity during which the deed is done; almost immediately subsidence of the furor, followed by partial or complete ignorance of the act."

But this last paragraph contains elements of truth familiar to all psychiaters but not at all applicable to Deustrow, for his period of anger was not immediately preceded by a calm attitude, nor did a sudden period of ferocity come on out of a calm, but developed as passion increased, and the passion passed, in the case of Duestrow, into a natural effort at escape and cunning explanation on the theory of accident with no witnesses to deny, and the act was not "followed by partial or complete ignorance of the act," but by full and complete knowledge, cunning and most natural explanation and plans for his comfort after the deed.

As a case of epilepsy Duestrow was not a success. No paroxysm preceded and none followed the murder. The old irresponsible limit of Zacchias of three days before or after a paroxysm was exceeded by three years of after observation and all the exciting incidents of repeated trials coupled

with excessive cigarette smoking, both exciting causes of attacks in the epileptically predisposed, and yet no paroxysm is recorded, though some testimony as to a staring spell or two, while drinking at the bar, was given by one or two witnesses but not confirmed by others.

Epilepsy is epilepsy whether idiopathic, traumatic, syphilitic, alcoholic or of other toxic or degenerative origin.

Now let us put in juxtaposition to the preceding misconceptions of this disease, the true conceptions of this malady of one who, though dead, yet truly speaketh, for he was recognized in his day and is yet regarded as one who knew well whereof he spoke.

Isaac Ray, on Epilepsy and its Legal Consequences, Chapter xviii, paragraph 436, *et seq.*, writes:

Epilepsy is a nervous disease characterized by paroxysms of insensibility, unconsciousness and convulsions. These vary in severity, from that of a simple vertigo, continuing for a few seconds and scarcely discernible by others, to that of a most distressful convulsive fit enduring from five minutes to some hours. They may recur twice or thrice a day for several days together, or once a week, month, or year. They sometimes occur without warning, but, as often perhaps, they are preceded by symptoms indicative of disturbance of the nervous functions; such as, giddiness, pain of the head, drowsiness, frightful dreams, hallucinations of sight or of hearing, vigilance, irritability of temper. The cessation of the paroxysm is followed by somnolence, pain in the head, and a sense of weakness. The recurrence of the fits is determined by whatever disturbs the general health, more especially by derangements of those organs in which the series of morbid phenomena takes its origin. Anger, fright or any strong moral emotion, is very liable to produce a paroxysm.

Discussing one hundred and forty-five imbecile or demented epileptics reported by Esquirol, Ray notes that, "all but sixteen were so only immediately after the fit, and that this was also the case with three of the thirty-four who were furious," and says:

This is a fact of no little importance in a medico-legal point of view, and should never be lost sight of in judicial investigations of the mental condition of epileptics.

This corypheus of Psychiatry continues: The maniacal

fury of these patients, is of the wildest and blindest kind which nothing can tame, the individual acting automatically, as it were, and in a state of unconsciousness. It may continue for minutes, hours or days. The dementia which is the form of mental derangement to which epileptics are most liable after the fit, is characterized by intellectual stupor and moral depression, in which, however, they have sufficient energy, under some circumstances, to commit acts of violence, of which they retain only an imperfect recollection when they recover. Another direct, though temporary effect of the epileptic fit, is to leave the mind in a morbidly irritable condition, in which the slightest provocation will derange it entirely. Sometimes this irritability is accompanied by a sense of anxiety, distrust, jealousy and unfounded fear, and sometimes by great activity of the lower propensities.

The mental disturbance generally follows the fit immediately, but in many cases it precedes the fit and heralds its approach. And this latter fact is irrespective of the form of the disturbance, which may be fury, excitement, confusion of ideas or stupidity. The ordinary succession of events, however, is not unfrequently changed. The mental disorder which usually succeeds the fit, may occasionally precede it, in the same individual; generally proportioned to the violence of the physical symptoms, but occasionally most severe when these symptoms have been least violent; and two successive fits may be attended, one by excessive mental disorder, and the other, by scarcely any.

To determine exactly the mental condition of an epileptic at the moment of his committing a criminal act, in whom the disease has not produced habitual insanity, is often a difficult task. It may have taken place in the absence of any observer, in a fit of fury that rapidly passed away, and which perhaps, may not have followed any previous paroxysm; or the accused, though subject to the disease, may not have recently suffered an attack, and may have appeared perfectly rational to those around him. The suspicion that the accused was deprived of his moral liberty when committing the criminal act, would be strengthened, if the paroxysms had been recently frequent and severe; if one had shortly preceded or succeeded the act, [etc.]. Cases of this kind should be closely scrutinized, and where the accused has been undeniably subject to epilepsy, he should have the benefit of every reasonable doubt that may arise respecting his sanity.

Here are some illustrative cases:

Joachim Hoewe, 29 years old, had been an epileptic since his sixth year. Since the age of puberty, the disease had become aggravated, and latterly had attacked him once in three weeks. He was long in recovering from the effects of the fits, being troubled with pain in the head and vertigo, and manifesting strong aversion to food, though never furious or insane. In July, 1826, after an hour's walk, he experienced a fit, and in the course of the three next days, he had several, appearing all the while to be quite unconscious, and refusing nourishment. On the third day he arose from his bed, and went down into the yard, where he met with a son of his brother ten years old, and a daughter of a relative to whom he was attached, eleven years old. The boy asked him if he did not wish to eat. The patient made no reply, but struck at him, when the children ran off. He followed them, overtook the girl, knocked her down, and catching up a hatchet from the ground, fractured her skull in several places, when the neighbors rushed in and, after considerable resistance, overpowered him. He now remained quiet, till they proceeded to carry him to the magistrate, when he broke out into violent expressions of hatred against his fellow-townsmen. In prison he laid two days in a state of unconsciousness, took no nourishment and had a fit. On the third day his reason returned; he expressed some interest in his friends, complained bitterly of his sufferings, but had no recollection of what had occurred. The question having been put to the medical expert (by whom the case was reported), whether the accused was in a responsible condition of mind when he committed the murder, it was answered in the negative, for the following reasons. Unlike real criminals, he had no definite purpose in view, and did not fly, after having committed the act. The mental condition of epileptics just before and after the fit, is usually very peculiar, and for many years medical jurists have not been in the habit of considering an epileptic as deserving of punishment for any offense he might commit within three days before or after a fit. Among the exciting causes of his fits at the time in question, and of the criminal act, the reporter mentioned the exercise and heat of the weather to which the accused had been exposed, and the inquiry of the child whether he would eat, which, on account of his morbid aversion to food, excited him, in his unconscious and irritable condition, to expend his fury on the nearest object. Two months after, he died in a fit.

The following case illustrates another *phasis*, from the

same source, of epilepsy, of great importance in a medico-legal point of view:

A very sober, quiet, and industrious tradesman, aged thirty, subject to occasional fits of epilepsy, and who had lately much inclined to religious devotion, was sitting calmly reading his Bible, when a female neighbor came in to ask for a little milk. He looked wildly at her, instantly seized a knife and attacked her, and then his wife and daughter. His aim appeared to be to decapitate them, as he commenced with each by cutting on the nape of the neck. Their cries brought assistance and he was secured before he had inflicted any fatal wound.

I saw him on the following day. His countenance then presented a most hideous and ferocious aspect; the complexion was a dusky red, his eyes starting from their sockets, and he was continually sighing deeply, or extending his jaws as if going to yawn. The pulsation of the temporal and radial arteries was full and laborious. He could make no reply to questions, although he attempted to do so; but he occasionally exclaimed, "oh dear!" He appeared to be on the very verge of apoplexy. He was depleted freely both by blood-letting and purging; his head was shaved, refrigerating lotions were applied to it, and a very low diet prescribed. On the third day his intellects were much improved, and he was quiet. He soon quite recovered, but never had the least recollection of the acts he had committed, [etc.].

Following this is the record of a doubtful case in which the doubt is cleared by the recurrence and well attested previous history of epileptic seizures.

Another record by the same author gives the history of paternal alcoholism and epilepsy in proof.

And here is the criterion for the prudent Alienist in court. Epilepsy in whatever form, being a paroxysmal disease, its recurrence precedent or subsequent to the crime in question should be sought for and established in order to make a presumption of epileptic disease, even in its masked forms and purely psychical alternate irresponsible states or blind morbid resistless impulsions, exempting from legal consequences of volitional crime. But the plea of alcoholic epilepsy was not offered in the Duestrow trial. It was epileptic paranoia.

PSYCHRO-AESTHESIA (COLD SENSATIONS), AND PSYCHRO-ALGIA (COLD PAINS.)*

By CHARLES L. DANA, M.D.,

Visiting Physician to Bellevue Hospital; Professor of Nervous Diseases, Bellevue Hospital Medical College.

INTRODUCTORY.—In a recently written article on the subject of paraesthesia† I have tried to show with some new emphasis the significance and relationship of this symptom. I venture to quote here some of my introductory paragraphs:

Paræsthesia is the name given to a number of subjective sensations, such as pricking, numbness, creeping sensations, tickling, and burning. It includes, in fact, nearly all the subjective sensations of the skin, except those of pain. It is a condition which is, therefore, extremely common, and in its mildest and most trivial character is much more often experienced than pain. When these sensations fix themselves in a certain locality, following the tract of the nerve, or fastening themselves upon the hand or foot, they take on a certain clinical picture, and deserve to have the name of a disease to just the same extent that a neuralgia does. Paraesthesia, in almost all cases, implies simply a lower grade of irritation of the nerve fibres than occurs in neuralgia, and is a kind of ghostly simulacrum of that disease. It very often precedes or accompanies attacks of pain. There is sometimes a tingling of the teeth or burning in the face which has a shadowy likeness to a toothache or trigeminal neuralgia. In the same way, one finds paraesthesias affecting the head, causing sensations of

*Read before the New York Neurological Society, October 5, 1897.

†*Text Book of Nervous Diseases*, fourth edition, p. 152.

pressure and constriction, of burning, and general undefinable discomfort, which are entirely comparable to headaches.

In conditions of neurasthenia, paraesthesias of the head are more common even than the headaches. Paraesthesia sometimes follows the course of a nerve, as when one feels numbness of the hand if the ulnar is pressed upon at the elbow, or numbness in the foot when the sciatic is pressed upon, as when the legs are crossed.

There is also paraesthesia affecting one of the intercostal nerves or one of the crural nerves. On the other hand, paraesthesia may affect all four extremities, so that they feel entirely benumbed or prickling. There is, I repeat, a very close analogy between these groups of paræsthesias and neuralgias.

Paræsthesia affects single cerebro-spinal nerves just as neuralgia does, or it may be more generally distributed. In the latter case it affects most the feet and hands, and it is called *acro-paræsthesia*.

We meet then with:

1. Cephalic paræsthesias, comparable to diffuse headaches.

2. Local paræsthesias, comparable to local neuralgias.

3. Acro-paræsthesia, involving the feet or hands or both diffusely.

The cephalic paræsthesias are usually symptoms of neurasthenic or lithæmic states. Among eighty-five cases of local and acro-paræsthesiæ, not symptomatic of other and organic nerve disease, I found that there were of the local forms thirty-five cases, of acro-paræsthesia fifty cases. The local paræsthesias affected the arms in eighteen cases, next the thigh and leg nerves in twenty cases, and, last, the trigeminal nerve in three cases.

The following analysis of eighty-five cases of paræsthesia occurring in my practice shows something of the cause and local development of the malady. The most frequent causes I find to be those concerned with occupation. Paræsthesia, in its general manifestations, may be considered almost an occupation neurosis. The list of cases may be put down as follows:

Occupation	15	Reflex irritation	2
Rheumatism	10	Hysteria	3
Alcoholism	6	Climacteric change	2
Infection	6	Various causes, such as neurasthenic state, puerperism, etc.	12
Senility	6		

Among 85 cases there were 36 males and 49 females:

	Males.	Females.	Total.
Hands and feet, or both affected	6	11	17
Hands alone	6	12	18
Feet and legs	10	10	20
General sensations	....	4	4
Local	14	12	26
	36	49	85

The special nerves affected were:

Trigeminal	4	Sacral	1
Brachial	5	Sciatic	1
Ulnar	7	Plantar	11
Radial	1		35
Crural	4		
Peroneal	1		

The commoner form of paræsthesia is simply that of a sensation of prickling numbness or of a part being asleep. A more rare form is that accompanied by sensation of heat, and here the perverted feeling verges closely upon pain. In fact, the sensation of heat is often so distressing that the patient considers it to all practical purposes a pain, although it may not correspond to the strictly technical psychological definition.

Psychro-æsthesia.—Among the rarer forms of paræsthesia are those of sensations of cold (psychro-æsthesia, from ψυχρός, cold). These sensations are felt quite apart from any actual lowering of the temperature of the body and without any objective evidences of vascular change in the affected part. Cold paræsthesias are not usually very distressing, and, although they are sometimes described as cold pains, they are not so akin to pain as are the heat sensations. The term psychro-æsthesia was first used by Pollaisson (*Lyon Médical*, 1887). Later it was adopted by Silvio (*La Riforma medica*, February 17 and 18, 1896,) and these authors have reported several cases of this kind. A case was also reported recently by Dr. L. G. Guthrie in *Brain*, spring and summer number, 1897. These two later articles have drawn renewed attention to this interesting symptom. A number of cases have occurred in my experience, and it seemed to me that it might be worth while to report a few of them in hopes that a fuller knowledge

of the ætiology and pathology of the condition might be obtained.

CASE I.—Dora C., aged fifty-three years; Ireland; washerwoman. The patient for three years had had constant tinnitus aurium, especially in the right ear, troubling her most at night, She had disease of both internal ears and chronic middle-ear catarrh, and both external canals were almost filled by soggy epithelial scales. Such was the report of her condition by Dr. A. M. Fanning. Her special complaint was of the cold sensation which she felt continuously in the forehead during all this period of three years. This annoyed her so much that she thought she could not get along without a bandage over her forehead to keep it warm. The sensation was bilateral and involved the upper part of the forehead, like a brow headache; the skin was not cold or in any way changed to the sight or touch. She had some of the ordinary paræsthesias in the hands and feet of the prickling pins-and-needles kind. She was slightly nervous and slept badly. There was no dyspepsia, and the bowels were regular. She drank a good deal of tea—five or six cups a day. Examination showed no anæsthesia in any form and no signs of organic nervous disease.

Here was a case of cold paræsthesia of the forehead, associated with the ordinary paræsthesias which occur in middle-aged women who do a great deal of washing and drink a good deal of tea and, perhaps, alcohol.

CASE II.—Francis L. L. aged fifty-six years; married; United States; mechanic. Family history good; no syphilis; habits temperate. His occupation compelled him to stand all day. The patient had some chronic bronchial trouble, and a year and a half ago he began to have paræsthesia of the legs below the knees. He said the trouble came on at two in the morning. Very soon after this he began to have sensations of coldness in the feet, which were always worse in the morning and lasted until the middle of the afternoon. During this time he felt as standing upon ice, and he would try by heat and rubbing to get rid of the discomfort. Toward three o'clock the cold sensations changed to burning sensations, which lasted until night. He had some tremor, the pulse was rather rapid, and he showed signs of arterial sclerosis. The lungs, heart and sexual organs were normal; digestion normal, and a physical examination showed absolutely no anæsthesia to the affected parts and no change in the vascularity. The reflexes were slightly exaggerated.

Here, again, we have a case of cold paræsthesia associated with heat and the ordinary prickling paræsthesia, due probably to exposure, to defective venous circulation dependent on the man's habits of standing at his work, and probably to some rheumatic influences.

CASE III.—Lewis S., aged forty-two years; married; butcher by occupation. Family and previous history negative. The patient was a healthy-looking man, who came to the clinic complaining of a sensation of coldness over the left thigh, especially marked on its anterior surface. This had lasted for six months, and had been gradually increasing. During the previous year he had had the same sensation in the right thigh, but this had disappeared. He denied syphilis and rheumatism. He drank, but not to excess. Examination showed absolutely no objective signs. Sensation was normal as to temperature, touch, and pain. The tongue was thickly coated, and there was some history of dyspepsia. On questioning him I found that in his occupation his thigh was constantly brought into contact with the edge of a table or counter; in other words, there was constant slight trauma. Dr. George R. Elliott, who examined his urine, concluded that there was a toxæmia from digestive disorder.

CASE IV.—James G., aged sixty-two years; Ireland; married; occupation, clerk. The patient had suffered several years from bronchitis. For three weeks previous to being seen by me he had been suffering from some prickling paræsthesia of the fingers and in the lower extremities, and, at the same time, he had sensations of cold in these parts. He had dyspepsia, poor appetite and constipation. Examination showed nothing objective in the hands and feet; the knee-jerks were present; there was no loss of power in the legs, and no anæsthesia over the affected parts. The sensations of cold were not due to actual vascular changes, but were subjective. The patient had no signs of tabes dorsalis.

CASE V.—Jeremiah H., aged forty-nine years; married; Ireland; laborer. The patient had always been a healthy man and did not drink intoxicating liquors. For four successive winters he had suffered during the whole of the cold weather from a sensation of coldness on the left leg, on the outer side just above the ankle. The affected area was sharply mapped out and measured about eight by four inches. It was not exactly painful, but gave him a great deal of annoyance and apprehension. The sensation dis-

appeared as the summer weather came on. There were no other complaints. Examination showed nothing abnormal in touch, sensation or pain, nor were there any objective changes to be seen in the part affected. A careful general examination was made without discovering any signs of organic disease. The patient described his symptoms vividly, and he was shown to my class as a case of cold paræsthesia, due to some irritation of the peripheral filaments of the external popliteal nerves.

CASE VI.—Elizabeth J., aged forty-one years; Ireland; domestic. For about a year the patient had suffered from some pains in the right ankle, together with prickling sensations which ran down to the toes and up to the knees. The part from the knee down also felt constantly cold, and this cold sensation was associated with paræsthesia and prickling. The patient denied ever having had rheumatism, and also denied drinking and other bad habits. Her general health was good, and there were no objective symptoms connected with the part affected. The legs and feet were not tender, nor was there any redness or swelling. The knee-jerks were present, and there was no particular weakness of the extremities. The patient complained of the coldness, but perhaps even more of the prickling and pain.

CASE VII.—Mr. C. C., aged forty-four years; United States; married; occupation, business. Family history good. The patient had had syphilis twenty years before, with secondary symptoms afterward. He was a well-nourished man and apparently in good health, except for the particular symptom complained of. This consisted of a sensation of intense coldness over the left hip on its lateral surface. The area was limited, and extended from the knee about two-thirds of the way up the thigh, mostly in the distribution of the external cutaneous nerve. He felt, he said, as though it had been painted with menthol. Warmth and exercise made it disappear for a time, but it returned. The part affected looked and felt to the touch perfectly normal. A careful examination failed to reveal any trouble with the general bodily functions. The urine, digestion, heart, and lungs were normal. The pulse was 68. A further careful examination was made for tabes, but he showed no signs of this. There was no loss of knee-jerks; no eye symptoms; no bladder symptoms. The patient simply suffered from this continual sensation of coldness of the thigh.

The foregoing cases all occurred in patients in whom it was impossible to detect any absolute signs of organic dis-

ease of the central or peripheral nervous system. I have under observation now at the Montefiore Home two patients, one of whom is certainly suffering from syringomyelia in an advanced stage. The other probably has syringomyelia in an early stage. In both cases the patients complain of a sensation of coldness over the upper extremities. This sensation is felt from the hands up to the elbows, and is simply a cold feeling not associated with pain. Both patients have some slight sensory disturbances, such as thermo and pain anæsthesia, but these are not marked. They are not accompanied with sensations of prickling or of heat, or with the ordinary paræsthesias.

I have presented the foregoing clinical data very much condensed, for the reason that I know that my hearers are familiar with cases of this kind, and it does not seem to me necessary to go into elaborate detail to illustrate further their character.

Analysis of Symptoms.—We have apparently two classes of cold paræsthesia. In one the symptom is not definitely limited to certain areas, but involves a whole extremity or all four extremities, and is associated with other paræsthesias or with pain, and often with evidence of vasomotor disturbance.

The other class of cold paræsthesia, psychro-æsthesia proper, is a disorder in which the sensation is quite an isolated one. The patient suffers from a feeling of cold exclusively, or almost so, having with it no prickling or numbness and not always any distinct pain, although it may amount to such. Furthermore, this form of paraesthesia is limited to some special area, oftenest upon the thigh or buttock, but sometimes upon the calf or upon the face, and more or less closely following the distribution of a nerve.

The sensation is purely dermal and superficial. The mind refers it to the external world, so that it seems like an objective sensation similar to a touch. The patient feels as though some cold object were lying upon the part.

The sensation may disappear in warm weather or under exercise.

In some instances it is not so much a cold sensation as a cold pain or psychro-algia, and it may be obstinate and distressing, especially in quite elderly and senile persons.

Pathogeny.—The psychro-æsthesias of the first or mixed type are met with oftenest in mild forms of neuritis, such as may be caused by alcohol, or such as occurs in sciatica; they are also observed in locomotor ataxia. Among thirty-six cases carefully examined for this symptom by Dr. Joseph Frankel, he found two persons who spontaneously complained of sensations passing up and down the back like waves of cold, or affecting the legs in a similar manner. The symptom also occurs in the early stage of syringomyelia, as noted in my two cases. Mixed psychro-æsthesia is thus usually due to neuritic irritation, but may indicate a lesion higher up. Yet in practically all cases it means a lesion of the peripheral sensory neurone at one part or another of its course.*

The exciting causes are usually alcohol, lithæmia, exposure, and toxic agents that lead to nerve degeneration.

The purer types of cold sensation and cold pain are found more often in men, and almost always in persons over forty years. The trouble is caused sometimes by trauma, combined with exposure and a rheumatic tendency. A neuropathic constitution favors its development. Pollaisson attributes some cases to varicose veins and to uterine disease.

So far as clinical experience and reading go, the cold paræsthesia of syringomyelia is less intense and less sharply limited than those in the cases described. The patients have simply a sensation of general coldness, but not of the same sharp smarting coldness complained of by the patients whose history I have reported. The sensation is really subjective, is like that felt in diffuse neuritis, and is perhaps due to vasomotor disturbances.

Pathology.—There are both special cold and special heat nerves distributed to the skin and some of the mucous membranes. The fibers carrying these thermal impulses

*Dr. William H. Thomson reports a case of psychro-æsthesia due to a cerebral lesion. Such cases are unique.

run in the cerebro-spinal nerves mingling with other sensory nerves. They separate again in the spinal cord, as shown in cases of syringomyelia and central-cord lesions, but apparently run very diffusedly in the brain axis and capsule, for local lesions here do not cause a differentiation of heat and cold anæsthesia. Hence (apart from psychical states) we must place the seat of the lesion in psychro-æsthesia practically almost always in the peripheral nerves. Its presence may, however, indicate a beginning syringomyelia or some other central cord lesion; and also, in rare cases, locomotor ataxia.

Treatment.—In most cases the treatment is that of an underlying neuritis or neuritic irritation. Anti-rheumatic drugs, nux vomica, exercise, and electricity are indicated. Locally, a liniment containing a little mustard oil is useful. Warm applications and friction sometimes give relief. In very obstinate cases the question of syringomyelia should be investigated. Where there are pain and evidences of decided neuritis, as in sciatica, rest is necessary.

AUTO-EROTISM: A PSYCHOLOGICAL STUDY.

By HAVELOCK ELLIS, London, England.

Honorary Fellow of the Chicago Academy of Medicine, Etc.

BY "auto-erotism" I mean the phenomena of spontaneous sexual emotion generated in the absence of an external stimulus proceeding, directly or indirectly, from another person. Such a definition excludes the normal sexual excitement aroused by the presence of a beloved person of the opposite sex; it also excludes the perverted sexuality associated with an attraction to a person of the same sex; it further excludes the manifold forms of erotic fetichism in which the normal focus of sexual attraction is displaced, and voluptuous emotions are only aroused by some object—hair, shoes, garments, etc.,—which to the ordinary lover are of subordinate though still indeed of considerable importance. The auto-erotic field remains extensive; it ranges from occasional voluptuous day-dreams, in which the subject is entirely passive, to the perpetual unashamed efforts at sexual self-manipulation witnessed among the insane. It also includes, though chiefly as curiosities, those cases in which individuals fall in love with themselves. Among auto-erotic phenomena, or on the borderland, we must further include those religious sexual manifestations for an ideal object, of which we may find evidence in the lives of saints and ecstatics. The typical form of auto-erotism is the occurrence of the sexual orgasm during sleep.

I do not know if any apology is needed for the invention of the term "auto-erotism."* There is no existing

*Letamendi, of Madrid, has recently suggested "auto-erastia" to cover what is probably much the same field. In the beginning of the century Hufeland in his *Makrobiotic* invented

word in current use to indicate the whole range of phenomena I am here concerned with. We are familiar with "masturbation," but that, strictly speaking, only covers a special and arbitrary sub-division of the field, although, it is true, the sub-division with which physicians and alienists have chiefly occupied themselves. "Self-abuse" is somewhat wider, but by no means covers the whole ground, while for various reasons it is an unsatisfactory term. "Onanism" is largely used, especially in France, and some writers even include all forms of homosexual connection under this name; it may be convenient to do so from a physiological point of view, but it is a confusing and antiquated mode of procedure, and from the psychological standpoint altogether illegitimate; "onanism" ought never to be used in this connection at all, if only on the ground that Onan's device was not auto-erotic at all.

While the name that I have chosen may possibly not be the best, there should be no question as to the importance of grouping all these phenomena together. It seems to me that this whole field has rarely been viewed in a scientifically sound and morally sane light simply because it has not been viewed as a whole. We have made it difficult to do this by directing our attention on the special group of auto-erotic facts—that group included under masturbation—which was most easy to observe and which in an extreme form came plainly under medical observation in insanity and allied conditions, and we have wilfully torn this group of facts away from the larger group to which it naturally belongs. The questions which have been so widely, so diversely, and—it must unfortunately be added—often so mischievously discussed, concerning the nature and evils of masturbation are not seen in their true light and proportions until we realize that masturbation is but a specialized form

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the term "*geistige onanie*" to express the filling and heating of the imagination with voluptuous images, without unchastity of body, and in 1844 Kaan, in his *Psychopathia sexualis* used but did not invent the term "onania psychica." Gustav Jaeger in his *Enteckung der Seele*, proposed "monosexual Idiosyncracy" to indicate the most animal forms of masturbation taking place without any correlative imaginative element, a condition illustrated by cases given in Moll's *Untersuchungen uber die Libido Sexualis*, Bd. I, pp. 13, *et seq.* But all of these terms only cover a portion of the field.

of a tendency which in some form or in some degree normally affects not only man but all the higher animals. From a medical point of view it is often convenient to regard masturbation as an isolated fact, but we must bear in mind its relationships to understand it. In this study of auto-erotism I shall frequently have occasion to refer to the old entity of "masturbation" because it has been more carefully studied than any other part of the auto-erotic field, but I hope it will always be borne in mind that the psychological significance and even the medical diagnostic value of masturbation cannot be appreciated unless we realize that it is an artificial sub-division of a great group of natural facts.

The study of auto-erotism is far from being an unimportant or merely curious study. Yet psychologists, medical and non-medical, almost without exception, treat these manifestations in a dogmatic and off-hand manner which is far from scientific. It is not surprising, therefore, that the most widely divergent opinions are expressed. Nor is it surprising that ignorant and chaotic notions among the general population should lead to the most pathetically ludicrous results. To mention one instance known to me: A married lady who is a leader in social purity movements and an enthusiast for sexual chastity, discovered through reading some pamphlet against solitary vice that she had herself been practicising masturbation for years without knowing it. The profound anguish and hopeless despair of this woman in face of what she believed to be the moral ruin of her whole life cannot well be described. It would be easy to give further examples, though scarcely a more striking one, to show the utter confusion into which we are thrown by leaving this matter in the hands of blind leaders of the blind. Moreover, the conditions of modern civilization render auto-erotism a matter of increasing social significance. As our marriage rate declines, and as illicit sexual relationships are, in England at all events, openly discouraged, it is absolutely inevitable that auto-erotic phenomena of one kind or another, not only among women but also among men, should increase among us both in amount and

intensity. It becomes, therefore, a matter of some importance, both to the moralist and the physician, to investigate the psychological nature of these phenomena, and to decide precisely what their attitude should be towards them.

I do not propose here to enter into a thorough discussion of all the aspects of auto-erotism.* That would involve a very extensive study indeed. I wish to consider briefly certain salient points concerning auto-erotic phenomena, especially their prevalence, their nature, their moral, physical and other effects. I base my study partly on the facts and opinions which during the last twenty years have been scattered through the periodical and other medical literature of Europe and America; and partly on the experience of individuals, especially of fairly normal individuals. I could wish information gained in the latter way more extensive, but unfortunately the number of normal persons whom one may question on such points with the certainty of receiving reliable answers is necessarily limited.

Among animals in isolation, and sometimes in freedom —though this can less often be observed—it is well known that various forms of spontaneous solitary sexual excitement occur. Horses when leading a lazy life may be observed flapping the penis until some degree of emission takes place. Welsh ponies, I learn from a man who has had much experience with these animals, habitually produce erections and emissions in their stalls; they do not bring their hind quarters up during this process, and they close their eyes, which does not take place when they have congress with mares. The same informant observed that bulls and goats produce emissions by using their forelegs as a stimulus, bringing up their hind-quarters and bending their backs. Donkeys behave like horses, and mares rub themselves against objects. Stags in the rutting season, when they have no partners, rub themselves against trees to produce ejaculation. Sheep masturbate; as also do camels,

*For instance, there is considerable difference of opinion as to how the first (usually auto-erotic) manifestation of the sexual impulse usually begins, whether as a local irritation or a psychic inclination to some real or imaginary person, most authors inclining to the former alternative: see Moll, *Untersuchungen uber die Libido Sexualis*, Bd. I, p. 54.

pressing themselves down against convenient objects; and elephants compress the penis between the hind legs to obtain emissions. Blumenbach observed a bear act somewhat similarly on seeing other bears coupling. Mammary masturbation, remarks Féré, is found in certain female and even male animals, like the dog and the cat.* Apes are much given to masturbation, even in freedom, according to the evidence of good observers; like men they are apt at all times for coitus, and while no female apes are celebates, many of the males are obliged to lead a life of celiby.† Male monkeys use the hand in masturbation, to rub and shake the penis.‡

In the lower species these phenemena are by no means found in civilization alone. However common masturbation may be in Europe, it is far from being, as Mantegazza has declared it to be, one of the moral characteristics of Europeans. It is found among the people of every race of which we have any intimate knowledge, however natural the conditions under which men and women may live. Thus among the Nama Hottentots, among the young women at all events, Gustav Fritsch found that masturbation is so common that it is regarded as a custom of the country; no secret is made of it, and in the stories and legends of the race, it is treated as one of the most ordinary facts of life. It is so also among the Basutos, and the Kaffirs are addicted to the same habit.§ When the Spaniards first arrived at Vizcaya and the Phillippines, they found that masturbation was universal, and that it was customary for the women to use an artificial penis and other abnormal methods of sexual gratification. Among the Balinese, according to Jacobs (as quoted by Ploss and Bartels), masturbation is general; in the boudoir of many a Bali beauty, he adds, and certainly in every harem, may be found a wax penis to which many hours of solitude are devoted. Throughout the East, as Eram, speaking from a long medi-

*Féré, "Perversions sexuelles chez les animaux," *Rev. Phil.*, May, 1897.

†Tillier, *L'Instinct sexuel*, 1889, p. 270.

‡Moll, *Libido Sexualis*, Bd. I, p. 76.

§Greenlees, *Journal of Mental Science*, July, 1895.

cal experience, has declared, masturbation is very prevalent, especially among young girls. In Cochin China, Lorion remarks, it is practised by both sexes, but especially by the married women.* Japanese women have probably carried the mechanical arts of auto-erotism to the highest degree of perfection. They use two hollow balls about the size of a pigeon's egg (sometimes one alone is used) which, as described by Joest, Christian and others,† are made of very thin leaf of brass; one is empty, the other (called the little man) contains a small heavy metal ball or else some quicksilver and sometimes also metal tongues which vibrate when set in movement, so that if the balls are held in the hand side by side there is a continual tremulous movement. The empty one is first introduced into the vagina in contact with the uterus, then the other; the slightest movement of the pelvis or thighs, or even spontaneous movement of the organs, causes the metal ball (or the quicksilver) to roll, and the resulting vibration produces a prolonged voluptuous titillation, a gentle shock as from a weak electric inductive apparatus; the balls are called *Rin-no-tama,* and are held in the vagina by a paper tampon. The women who use these balls delight to swing themselves in a hammock or rocking chair, the delicate vibration of the balls slowly producing the highest degree of sexual excitement. Joest mentions that this apparatus, though well known by name to ordinary girls, is chiefly used by the more fashionable geishas, as well as by prostitutes. Its use has now spread to China, Annam and India. In China also the artificial penis—made of rosin, supple, and (like the classic instrument described by Herondas) rose-colored —is publicly sold and widely used by women.

It may be noticed that among non-European races it is among women, and especially among those who are subjected to the excitement of a life professionally devoted to some form of pleasure, that the use of artificial instruments of auto-erotism is chiefly practised. The same is markedly

*La Criminalté en Cochin Chine, 1887, p. 116.

†Christian, art "Onanisme," Dict. ency. des sci med, Ploss and Bartels, Das Weib Moraglia, Die Onanie beim normalen Weibe. *Zt. f. Criminal-Anthropologie,* 1897.

true in Europe. The use of an artificial penis in solitary sexual gratification may be traced down from classical times. The Lesbian women are said to have used such instruments made of ivory or gold with silken stuffs and linen. Aristophanes (*Lysistrata*, v. 109) speaks of the use by the Milesian women of a leather artificial penis, or *olisbos*, which he calls *skutina 'epikouria*. In the British museum is a vase representing a *hetaira* with such instruments in her hand. One of the best of Herondas' memoirs, "The Private Conversation," presents a dialogue between two ladies concerning a certain *olisbos* which one of them vaunts as a dream of delight, so soft and so firm, she says, far superior to a man. Through the middle ages (when from time to time the clergy reprobated the use of such instruments) to the Elizabethan age when Marston in his satires tells how Lucea scorns

> "Her husband's lukewarm bed,
> Because her pleasure being hurried;
> In jolting couch a glassy instrument,
> Doth far exceed the Paphian blandishment."

Down to the present day somewhat similar appliances, known as dildoes and by other names, may be traced in all centers of civilization. But throughout they appear to be largely confined to the world of prostitutes and to those women who live on the fashionable or semi-artistic verge of that world. Ignorance and delicacy combine with a less versatile and perverted concentration on the sexual impulse to prevent any general recourse to such highly specialized methods of solitary gratification.

On the other hand, the use, or rather abuse, of the ordinary objects and implements of daily life in obtaining auto-erotic gratification, among the ordinary population in civilized modern land, has reached an extraordinary degree of extent and variety which we can only feebly estimate by the occasional resulting mischances which reach the surgeon's hands. In the last century Mirabeau in his Erotika Biblion gave a list of the various objects used in convents (which he describes as "vast theatres" of such practices) to obtain solitary sexual excitement. In more recent

years the following are a few of the objects found in the vagina or bladder whence they could only be removed by surgical interference:* Pencils, cotton reels, hair-pins, bodkins, knitting needles, crochet needles, needle cases, compasses, glass stoppers, corks, tumblers, tooth-picks, tooth-brushes, pomade pots (in a case recorded by Schroeder with a cockchafer inside, a makeshift substitute for the Japanese *ri-no-tama*), while in one recent English case a full-sized hen's egg was removed from the vagina of a middle-aged married woman. The age of the individuals in whom these objects have been found is usually from 17 to 50, but in a few cases they have been found in girls below 14; the large objects, naturally, are found chiefly in the vagina, and in married women. The patient usually professes profound ignorance as to how the object came there; or she explains that she accidentally sat down upon it, or (in the case of the bladder) that she used it to produce freer urination.†

Hair-pins have, above all, been found in the female bladder with special frequency; this point is worth some consideration as an illustration of the enormous frequency of this form of auto-erotism. The female urethra is not a normal center of sexual feeling, so that the introduction of an object into it can only occur by mistake or by perversion of sexual feeling. Moreover, for every case in which the hair-pin disappears and is lost in the bladder, from carelessness or the oblivion of the sexual spasm, there must be a vast number of cases in which the instrument is used without any such unfortunate result. There is thus great significance in the frequency with which cases of hair pin in the bladder are strewn throughout the medical literature of all countries. In 1862 a German surgeon found the accident so common that he invented a special instru-

*Poulet Foreign Bodies, Vol. I.

†Sec. *e. g.* Winckel, *Die krankheiten der weiblichen Harnrohre und Blase*, 1885, p. 211; *Ibid Lehrbuch der Fraunenkrankheiten*, 1886, p. 210. Grünfeld (*Wien. Med. Blatter*, 26 Nov. 1896) collected 115 cases of foreign body in the bladder—68 in men, 47 in women: but while those found in men were usually the result of a surgical accident, those found in women were mostly introduced by the patients themselves. Foreign bodies are even found in the uterus itself; thus Neugebauer (as reported in *Brit. Medical Journal*, Dec. 18, 1897) has prepared a special work on 550 such cases which he has collected and classified; of true foreign bodies 63 authentic cases are enumerated, though a certain proportion of these would have entered accidentally.

ment for extracting hair-pins from the female bladder. In France, Denucé of Bordeaux came to the conclusion that hair-pin in the bladder is the commonest result of masturbation as known to the surgeon. In England cases are constantly being recorded. In New York one physician met with four cases in a short experience.* In Switzerland Prof. Reverdin had a precisely similar experience.†

There is, however, another class of material objects, widely employed for producing physical auto-erotism, which in the nature of things never reaches the surgeon. I refer to the effects that, naturally or unnaturally, may be produced by many of the implements of daily life that do not come in direct contact with the sexual organs. Children sometimes, even when scarcely more than infants, produce sexual excitement by friction against the corner of a chair and other pieces of furniture.‡ Girls in France, I am told, are fond of going on the *chevaux-de-bois*, or hobby horses, because of the sexual excitement thus aroused; and that the sexual emotions play a part in the fascination exerted by this form of amusement everywhere is indicated by the ecstatic faces of its devotees. At the temples in some parts of Central India, I am told, swings are hung up in pairs, men and women swinging in these until sexually excited; during the months when the men in these districts have to be away from home the girls put up swings to console themselves for the loss of their husbands. It is well known

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*Dudley, *Am. Journal Obstetrics*, July, 1889, p. 758.

†A. Reverdin, "Epingles à Cheveux dans la Vessic, *Rev. Med. de la Suisse Romande.* Jan. 20, 1888. His cases are fully recorded and his paper is an able and interesting contribution to this by-way of sexual psychology. The first case was a schoolmaster's wife, aged 22, who confessed in her husband's presence, without embarrassment or hesitation, that the maneuver was habitual, learned from a school companion, and continued after marriage. The second was a single woman of 42, a *Cure's* servant, who attempted to elude confession, but on leaving the doctor's house remarked to the house-maid, "Never go to bed without taking out your hair-pins: accidents happen so easily." The third was an English girl of 17, who finally acknowledged that she had lost two hair-pins in this way; the fourth, a child of 12 who was driven by the pain to confess that the practice had become a habit with her.

‡"One of my patients," remarks Dr. R. T. Morris of New York (Trans. American Assoc. of Obstetricians for 1892, Philadelphia, Vol. v), who is a devout church member, had never allowed herself to entertain sexual thoughts referring to men, but she masturbated every morning, when standing before the mirror, by rubbing against a key in the bureau drawer. A man never excited her passions, but the sight of a key in any bureau drawer aroused erotic desires.

that both in men and women the vibratory motion of a railway train frequently produces a certain degree of sexual excitement especially when sitting forward. I am not aware that this quality of railway traveling has ever been fostered as a sexual perversion, but the sewing machine, especially in France, has attracted considerable attention on account of its influence in exciting auto-erotic manipulations. According to one French authority it is a well recognized fact that to work a sewing machine with the body in a certain position produces sexual excitement leading to the orgasm. The occurrence of the orgasm is indicated to the observer by the machine being worked for a few seconds with uncontrollable rapidity. This sound is said to be frequently heard in large French work-rooms, and it is part of the duty of the superintendents of the rooms to make the girls sit properly.* In cases where the sewing machine does not lead to direct self-excitement, it has been held, as by Fothergill,† to predispose to frequency of involuntary sexual orgasm during sleep, from the irritation set up by the movement of the feet in the sitting posture during the day. The essential movement in working the sewing machine is the flexion and extension of the ankle, but the muscles of the thighs are used to maintain the feet firmly on the treadle, the thighs are held together, and there is a considerable degree of flexion or extension of the thighs on the trunk; by a special adjustment of the body, and sometimes perhaps merely in the presence of sexual hyperaesthesia, it is thus possible to act upon the sexual organs, but this is by no means a necessary result of using the sewing machine, and inquiries of various women, with well developed sexual feelings, who are accustomed to work the treadle, has not shown the presence of any tendency in this direction. Sexual irritation may also be produced by the bicycle in women. Thus Moll‡ remarks that he knows many married women, and some unmarried, who experience sexual excitement when cycling; in several cases, he has

*Pouillet, *De l'onanisme chez la Femme*, Paris, 1880; Fournier, *De l'onanisme*, 1885.

†*West Riding Asylum Reports*, 1896, vol. 6.

‡Der Nervose Weib, 1898, p. 193.

ascertained that the excitement is carried as far as complete orgasm. This result cannot, however, easily happen unless the seat is too high, the peak in contact with the organs, and a rolling movement is adopted; in the absence of marked hyperaesthesia these results are only effected by a bad seat or an improper attitude, the body during cycling resting under proper conditions on the buttocks, and the work being mainly done by the muscles of the thighs and legs which control the ankles, flexion of the thigh on the pelvis being very small. Most medical authorities on cycling —English, French and American—are of opinion that when cycling leads to sexual excitement the fault lies more with the woman than with the machine.

In a further class of cases, no external object whatever is used to procure the sexual orgasm, but the more or less voluntary pressure of the thighs alone is brought to bear upon the organs. This is sometimes done by men, and seems to be fairly common among women (who are, for instance, often able to produce the orgasm, when in a state of sexual excitement, by placing a cushion between the knees and pressing the thighs together) and even in female infants. Thus Townsend records the case of an infant eight months old, who would cross her right thigh over the left, close her eyes and clench her fists; after a minute or two there would be complete relaxation with sweating and redness of face; this would occur about once a week or oftener and the child was quite healthy, with no abnormal condition of the genital organs.*

Most of the foregoing examples of auto-erotism are commonly included, by no means correctly, under the heading of "masturbation." There are, however, a vast number of people, possessing strong sexual emotions and living a solitary life, who experience, sometimes by instinct, and sometimes on moral grounds, a strong repugnance for these manifestations of auto-erotism. As one highly intelligent lady writes: "I have sometimes wondered whether I could

*C. W. Townsend, "Thigh Friction in Children under one year." Annual meeting of American Pediatric Society, Montreal, 1896. Five cases are recorded by the writer, all in female infants.

produce it (complete sexual excitement) mechanically, but I have a curious unreasonable repugnance to trying the experiment. It would materialize it too much." The same repugnance may be traced in the tendency to avoid, so far as possible, the use of the hands. It is quite common to find this instinctive unreasoning repugnance among women, a healthy repugnance, not founded on any moral ground. In men the same repugnance exists, more often combined with, or replaced by, a very strong moral and aesthetic objection to such practices. But the presence of such a repugnance, however invincible, is very far from carrying us outside the auto-erotic field. The production of the sexual orgasm is not necessarily dependent on any external contact or voluntary mechanical cause.

As an example, though not of specifically auto-erotic manifestations, I may mention the case of a man of 57, a somewhat eccentric preacher, etc., who writes: "My whole nature goes out so to some persons, and they thrill and stir me so that I have had an emission while sitting by them with no thought of sex, only the gladness of soul found its way out thus, and a glow of health suffused the whole body. There was no spasmodic conclusion but a pleasing gentle sensation as the few drops of semen passed." (In reality, no doubt, not semen, but prostatic fluid.) This man's condition may certainly be considered somewhat morbid; he is attracted to both men and women, and the sexual impulse seems to be irritable and weak; but a similar state of things exists so often in women, no doubt due to sexual repression, and in individuals who are in a general state of normal and good health, that in these it can scarcely be called morbid. It is, however, on the verge of morbidity as we may frequently see in those unfortunate victims of sexual repression, both men and women, who from moral reasons, ignorance, or on other grounds, are restrained from attaining the complete sexual orgasm, but whose sexual emotions are, literally, continually dribbling from them. Schrenck-Notzing knows a lady who is spontaneously sexually excited on hearing music or seeing pictures without anything lascivious in them; she knows

nothing of sexual relationships. Another lady is sexually excited on seeing beautiful and natural scenes, like the sea; sexual ideas are mixed up in her mind with these things, and the contemplation of a specially strong and sympathetic man brings the orgasm on in about a minute. Both these ladies "masturbate" in the streets, restaurants, railways, theatres, without any one perceiving it.* Evidently under these conditions there is a state of hyperaesthetic weakness. Such cases are far from rare, but I do not propose to deal with them here. They may more properly be considered when dealing with the sensory excitants of the sexual emotions.

There is, however, a closely allied and indeed overlapping form of auto-erotism which may be considered here, I mean that associated with reverie or day-dreaming. Although this is a very common and important form of auto-erotism, besides being in a large proportion of cases the early stage of masturbation, it appears to have attracted very little attention. The day-dream has, indeed, been studied in its chief form, in the "continued story," by Mabel Learoyd of Wellesley College. The continued story is an imagined narrative, more or less peculiar to the individual, by whom it is cherished with fondness, and always regarded as an especially sacred mental possession, to be shared only, if at all, with very sympathizing friends. It is much commoner among girls and young women than among boys and young men; among 352 persons of both sexes, 47 per cent. among the women and only 14 per cent. among the men have any continued story. The starting point is an incident from a book, or, more usually, some actual experience, which the subject develops; the subject is nearly always the hero or the heroine of the story. The growth of the story is favoured by solitude, and lying in bed before going to sleep is the time specially sacred to its cultivation.† No distinct reference, perhaps naturally enough, is made by Miss Learoyd to the element of sexual emotion

*Schrenck-Notzing, *Suggestions Therapie*, p. 13.

†Minor studies from the Psychological Laboratory of Wellesley College, *American Journal of Psychology*, Vol. vii, No. 1.

with which these stories are often strongly tinged, and which is frequently their real motive. It is not uncommon to find, though by no means easy to detect, these elaborate and more or less erotic day-dreams in young men and especially young women. Each individual has his own particular dream which is always varying or developing; but, except in very imaginative persons, to no great extent. Such a day-dream is often founded on a basis of pleasurable personal experience and develops on that basis. It may involve an element of perversity, even although that element finds no expression in real life. It is of course mainly fostered by sexual abstinence, whence its frequency n young women. Most usually there is little attempt to realize it. It does not necessarily lead to masturbation, though it often causes some sexual congestion or even spontaneous sexual orgasm. The day-dream is a strictly private and intimate experience, not only from its very nature, but also because it occurs in images which the subject finds great difficulty in translating into language, even when willing to do so. In other cases it is elaborately dramatic or romantic in character, the hero or heroine passing through many experiences before attaining the erotic climax of the story. This climax tends to develop in harmony with the subject's growing knowledge or experience, at first merely a kiss it may develop into any refinement of voluptuous gratification. The day-dream may occur either in normal or abnormal persons. Rousseau in his Confessions describes such dreams, in his case combined with masturbation. A distinguished American novelist, Hamlin Garland, has admirably described in *Rose of Dutchers Coolly* the part played in the erotic day-dreams of a healthy normal girl at adolescence by a circus rider, seen on the first visit to a circus. Raffalovich describes the process by which in sexual inverts the vision of a person of the same sex, perhaps seen in the streets or the theatre, is evoked in solitary reveries, producing a kind of "psychic onanism," whether or not it leads on to physical manifestations.

Although day-dreaming of this kind has at present been very little studied, since it loves solitude and secrecy

and has never been counted of sufficient interest for scientific inquisition, it is really a process of considerable importance and occupies a large part of the auto-erotic field. It is largely cultivated by refined and imaginative young men and women who lead a chaste life and would often be repelled by masturbation. In such persons, under such circumstances, it must be considered as strictly normal, the inevitable outcome of the play of the sexual impulse. No doubt it may often become morbid, and is never a healthy process when indulged in to excess, as it is liable to be by refined young people with artistic impulses with whom it is to the highest degree seductive, insidious and inevitable.*

Even when we have eliminated all these forms of auto-erotic activity, however refined, in which the subject takes a voluntary part, we have still left unexplored an important portion of the auto-erotic field, a portion which many people are alone inclined to consider normal—sexual orgasm during sleep.† That under conditions of sexual abstinence in healthy individuals there must inevitably be some auto-erotic manifestations during waking life, a careful study of the facts compels us to believe. There can be no doubt also that, under the same conditions, the occurrence of the complete orgasm during sleep with, in men, seminal emissions, is altogether normal. Even Zeus himself, as Pausanias has recorded, was liable to such accidents, a statement which at all events shows that to the Greek mind there was nothing derogatory in such an occurrence. The Jews, however, regarded it as an impurity,‡ and the same idea was transmitted to the Christian church and embodied in the word

*This phenomena was termed by Prof. Julius Nelson, who first studied it with precision *gonehbole*, Nelson, "A Study of Dreams." *American Journal of Psychology*, Vol. I, No. 3,1888.

†The acute Anstie remarked nearly thirty years ago in his work on *Neuralgia:* "It is a comparatively frequent thing to see an unsocial solitary life (leading to the habit of masturbation) joined with the bad influence of an unhealthy ambition prompting to premature and false work in literature and art." From the literary side M. Léon Bazalgette has dealt with the tendency in much modern literature to devote itself to what he calls "mental onanism," of which the probable counterpart, he seems to hint, is a physical process of auto-erotism. Leon Bazalgette, "L'onanisme considéré comme principe createur en art," *Magazine Internationale*, September, 1896.

‡If any man's seed of copulation go out from him, then he shall bathe all his flesh in water and be unclean until the even. And every garment, and every skin, whereon is the seed of copulation, shall be washed with water and be unclean until the even." *Lev, xv, 16-17*

pollutio by which the phenomena was designated in ecclesiastical phraseology. In the "Parson's Tale," Chaucer makes the parson say: "Another sin appertaineth to lechery, that cometh in sleeping; and the sin cometh oft to them that be maidens, and eke to them that be corrupt; and this sin men clepe pollution, that cometh in four manners"; those four manners being—(1) languishing of body from rank and abundant humors, (2) infirmity, (3) surfeit of meat and drink, (4) villainous thoughts.* Even to the early Protestant mind, as illustrated by Luther, there was something diseased though not impure in sexual excitement during sleep; thus in his *Table Talk*, Luther remarks that girls who have such dreams should be married at once, "taking the medicine which God has given." It is only of recent years that medical science has obtained currency for the belief that this auto-erotic process is entirely normal. Sir James Paget declared that he had never known celibate men who had not such emissions from once or twice a week to twice every three months, both extremes being within the limits of good health, while Lauder Brunton considers once a fortnight or once a month about the usual frequency, at these periods the emissions often following two nights in succession. Quite lately there has been some tendency for medical opinion to revert to the view of Luther and to regard sexual excitement during sleep as a somewhat unhealthy phenomenon. Moll is a distinguished advocate of this view. Sexual excitement during sleep is the normal result of celibacy, but it is another thing to say that it is on that account satisfactory. We might then, Moll remarks, maintain that nocturnal incontinuance of urine is satisfactory since the bladder is thus emptied. Yet we take every precaution against this by insisting that the bladder shall be emptied before going to sleep.† This remark is supported by the fact, to which I find that both men and women can bear witness, that sexual excitement during sleep is more fatiguing than in the waking state, though this may not be an invariable rule.

*Madame Roland in her Mémoires Partieullères presents a vivid picture of the anguish produced in an innocent girl's mind by this doctrine of the sinfulness of erotic dreams.

†Moll, *Untersuchungen uber die Libido Sexualis, Bd. I, p. 552.*

So far as I have been able to ascertain, there seem to be, generally speaking, certain differences in the manifestations of auto-erotism during sleep in men and women which I believe to be not without psychological significance. In men the phenomenon is fairly simple; it usually appears about puberty, continues at intervals of varying duration during sexual life provided the individual is living chastely, and is generally though not always accompanied by erotic dreams which lead up to the climax, its occurrence being to some extent influenced by a variety of circumstances: physical, mental or emotional excitement, alcohol taken before retiring, position in bed (as lying on the back), sometimes the mere fact of being in a strange bed, and perhaps, as Nelson and others have argued, by the existence of monthly and yearly rhythms. On the whole it is a fairly definite and regular phenomenon which usually leaves little conscious trace on awaking beyond probably some sense of fatigue and occasionally a headache. In women, however, the phenomena of auto-erotism during sleep seem to be much more irregular, varied and diffused. So far as I have been able to make inquiries, it is the exception rather than the rule for girls to experience definitely erotic dreams about the period of puberty or adolescence.* Auto-erotic phenomena during sleep in women who have never experienced the orgasm when awake are, I believe, of a very vague kind; while it is the rule in a chaste youth for the orgasm thus to manifest itself, it is the exception in a chaste girl. It is not, as a rule, until the orgasm has been definitely produced in the waking state—under whatever conditions it may have been produced—that it begins to occur during sleep, and even in a strongly sexual woman living a repressed life it is often comparatively infrequent. It is possible that to this fact we may in part attribute the violence with which repressed sexual emotion in women

*I may here refer to the curious opinion expressed by Dr. Elizabeth Blackwell that while the sexual impulse in man is usually relieved by seminal emissions during sleep: in women it is relieved by the occurrence of menstruation. This latter statement is flagrantly at variance with the facts, but it may perhaps be quoted in support of the view expressed above as to the comparative rarity of sexual excitement during sleep in young girls.

often manifests itself.* There is thus a difference here between men and women which is of some significance when we are considering the natural satisfaction of the sexual impulse in chaste women.

One of the most interesting and important characters by which the erotic dreams of women—and indeed their dreams generally—differ from those of men is in the tendency to evoke a repercussion on the waking life, a tendency more rarely noted in men's erotic dreams and then only to a minor extent. This is very common even in healthy and normal women, and is exaggerated to a high degree in neurotic subjects by whom the dream may even be interpreted as a reality and so declared on oath, a fact of practical importance.†

This tendency of the auto-erotic phenomena of sleep to be manifested with such energy as to flow over into the waking life and influence conscious emotion and action, while very well marked in normal and healthy women, is seen to an exaggerated extent in hysterical women, in whom it has therefore, chiefly been studied. *Sante de Sanctis*, who has investigated the dreams of many classes of people, remarks on the frequently sexual character of the dreams of hysterical women, and the repercussion of such dreams on the waking life of the following day; he gives a typical case of hysterical erotic dreaming in an uneducated servant girl, of 23, in whom such dreams occurred, especially a few days before the menstrual period; her dreams, especially if erotic, make an enormous impression on her, in the morning she is bad-tempered if they were unpleasant, while she feels lascivious and gives herself up to masturbation if she

*It may be added that in more or less neurotic women and girls, erotic dreams may be very frequent and depressing. Thus J. M. Fothergill (*West Riding Reports*, 1877) remarks: "These dreams are much more frequent than is ordinarily thought, and are the cause of a great deal of nervous depression among women. Women of a highly nervous diathesis suffer much more from these drains than robust women. Not only are these involuntary orgasms more frequent among such women, but they cause more disturbance of the general health in them than in other women."

†See C. C. Hersman, "The Medico-Legal Aspect of Eroto-Choreic Insanities," ALIENIST AND NEUROLOGIST, July, 1897, where the opinions of various distinguished alienists are quoted. I may refer here, also, to the tendency to erotic excitement in women under the influence of chloroform, a tendency rarely or never noted in men, and of the frequency with which the phenomena is attributed by the subject to actual assault.

has had erotic dreams of men; she then has a feeling of pleasure throughout the day, and her sexual organs are bathed with moisture.* *Gilles de la Tourette*, one of Charcot's most distinguished pupils, in his elaborate work on hysteria, considers that dreams generally have a great influence on the waking life of the hysterical, and he deals with the special influence of erotic dreams, to which doubtless, we must refer these conceptions of *incubi* and *succubi*, which played so vast and so important a part in the demonology of the middle ages, and which, while not unknown in men, were most frequent in women. These erotic dreams—as *Gilles de la Tourette*, confirming the experience of old writers, has found among the hysterical to-day—are by no means always, or even usually, of a pleasurable character.† Pitres who had previously studied the same subject, reached the same conclusion. "It is very rare," he remarks, for the erotic hallucinations of the hysterical to be accompanied by agreeable voluptuous sensations. In most cases the illusion of sexual intercourse even provokes acute pain. The witches of old times nearly all affirmed that in their relations with the devil, they suffered greatly. They said that his organ was long and rough and pointed, with scales which lifted on withdrawal and tore the vagina.‡ (It seems probable, I may remark that the witches' representations, both of the devil and of sexual intercourse, were largely influenced by familiarity with the coupling of animals). As Gilles de la Tourette is careful to warn his readers, we must not too hastily assume from the prevalence of the nocturnal auto-erotic phenomena in hysterical women, that such women are necessarily sexual and libidinous in excess, the disorder is in them psychic, he points out, and not physical, and they usually receive sexual approaches with indifference and repugnance, because their sexual centers are anæsthetic or hyperæsthetic. During the period of sexual activity, they seek much more the care and delicate attention of men than the genital act,

*Sante de Sanctis, *I sogni e il sonns nell isterismo e nella epilessia.* Rome, 1890, p. 10.

†Gilles de la Tourette, *Traite de l'hysterie: L'hysterie normale*, 1891, p. 513.

‡Petres, *Lecons cliniques sur l'hysterie.* Vol. II, p. 39.

which they often only tolerate. Many households, begun under the happiest auspices—the bride all the more apt to believe that she loves her betrothed in virtue of her suggestibility, easily exalted, perhaps at the expense of the senses—become hells on earth. The sexual act has for the hysterical woman, more than one disillusion; she cannot understand it; it inspires her with insurmountable repugnance. I refer to these hysterical phenomena because they present to us in an extreme form, facts which are common among women, whom, under the artificial conditions of civilized life, we are compelled to regard as ordinarily healthy and normal.

No doubt there has been a tendency to exaggerate the unpleasant character of the auto-erotic phenomena of hysteria. That tendency was an inevitable reaction against an earlier view, according to which hysteria was little more than an unconscious expression of the sexual emotions and as such was unscientifically dismissed without any careful investigation. I agree with Breuer and Freud, the distinguished Viennese investigators of hysteria, who seem to me to have thrown more light on its psychic characters than any other recent investigators, that the sexual needs of the hysterical are just as individual and various as those of normal women, but that they suffer from them more largely through a moral struggle with their own instincts and the attempt to put them into the background of consciousness.* In many hysterical and psychically abnormal women, auto-erotic phenomena, and sexual phenomena generally, are highly pleasurable, though there may be quite innocence of any knowledge of the erotic character of the experience. I have come across interesting and extreme examples of this in the published experiences of the women followers of the American religious leader, T. L. Harris, founder of the "Brotherhood of the New Life." Thus in a pamphlet, entitled, "*Internal Respiration*," by Respirö, a letter is quoted from a lady physician, who writes: "One morning, I awoke with a strange new feeling in the womb, which lasted for a day or two; I was so very happy, but

*Breuer and Freud, *Studien uber hysterie*, 1895, p. 217.

the joy was in my womb, not in my heart." "At last," writes a lady, quoted in the same pamphlet, "I fell into a slumber, lying on my back with arms and feet folded, a position I almost always find myself in when I awake, no matter in which position I may go to sleep. Very soon I awoke from this slumber with a most delightful sensation, every fibre tingling with an exquisite glow of warmth. I was lying on my left side (something I am never able to do), and was folded in the arms of my counterpart. Unless you have seen it, I cannot give you an idea of the beauty of his flesh, and with what joy I beheld and felt it. Think of it, luminous flesh; and Oh! such tints, you never could imagine without seeing. He folded me so closely in his arms, etc."

To complete this summary of the main phenomena of auto-erotism, I may briefly mention that tendency which is sometimes found, more especially perhaps in women, for the sexual emotions to be absorbed, and often entirely lost in self-admiration. This Narcissus-like tendency, of which the normal germ in women is symbolized by the mirror, is found in minor degree in some feminine-minded men, but appears to be very rarely found in men, apart from sexual attraction for other persons, to which attraction it is, of course, normally subservient. But occasionally in women, it appears to exist by itself to the exclusion of any attraction for other persons. A typical case is that of a lady of 28, of very large and fine proportions, active and healthy and intelligent, with, however, no marked sexual attraction to the opposite sex; at the same time she is not inverted, though she would like to be a man, and has a considerable degree of contempt for women. She has an intense admiration for her own person, especially her limbs; she is never so happy as when alone and naked in her own bedroom, and so far as possible, she cultivates nakedness. She knows by heart the various measurements of her body, is proud of the fact that they are strictly in accordance with the canons of perfection, and she laughs proudly at the thought that her thigh is larger than many a woman's waist. She is frank and assured in her manners, without

sexual shyness, and while willing to receive the attention and admiration of others, she makes no attempt to gain it, and has never at any time experienced any emotions stronger than her own pleasure in herself.

The foregoing sketch will serve to show how vast is the field of life—of normal and not merely abnormal life—more or less infused by auto-erotic phenomena. If, however, we proceed to investigate precisely the exact extent, degree and significance of such phenomena, we are met by many difficulties. In the first place, no attempts have been made to ascertain the relationship of auto-erotic phenomena, except as regards the group—a somewhat artificial group, as I have already tried to show—collected under the term "masturbation," while even here such attempts have only been made among abnormal classes of people, or have been conducted in a manner scarcely likely to yield reliable results. Still there is a certain significance in the more careful investigations which have been made to ascertain the precise frequency of masturbation.

Berger, an experienced specialist in nervous diseases, concludes in his *Vorlesungen*, that 99 per cent. of young men and women masturbate occasionally, while the hundredth conceals the truth; and Hermann Cohn appears to accept this statement as generally true in Germany. So high an estimate has of course been called in question, and since it appears to rest on no basis of careful investigation, we need not seriously consider it. It is useless to argue on suppositions; we must cling to our definite evidence, even although it yields figures which are probably below the mark. Moraglia, who made inquiry of 200 women of the lower class in Italy, found that 120 acknowledged either that they still masturbate or that they had done so during a long period. This brings down Berger's 99 per cent. to 60, though it must be admitted that it refers to another country, and only a single sex; and makes no allowance for a balance of unacknowledged practices or for only occasional indulgence in masturbation. "Here in Switzerland," a correspondent writes, "I have had occasion to learn from adult men, whom I can trust, that they have

reached the age of 25, or over, without sexual congress. '*Wir haben nicht dieses beduerfniss*,' is what they say. But I believe that, in the case of the Swiss mountaineers, moderate onanism is practiced as a rule." In hot countries the same habits are found at a more precocious age. In Venezuela, for instance, among the white Spanish creoles, Ernst found that in all classes boys and girls are infested with the vice of onanism. They learn it early, in the very beginning of life, from their wet-nurses, generally low Mulatto women, and many reasons help to foster the vice; the young men are often dissipated and the young women often remain single.* Ferriani, who has made an elaborate study of youthful criminality in Italy, states that even if all boys and girls among the general population do not masturbate, it is certainly so among those that have a tendency to crime. Among 458 adult male criminals, Marro (as he states in his *Carateri dei Delinquenti*) found that only 72 denied masturbation, while 386 had practiced it from an early age; 140 of them before the age of 13.† Among 30 criminal women, Moraglia found that 24 acknowledged the practice, at all events in early youth (8 of them before the age of 10, a precocity accompanied by average precocity in menstruation), while he suspected that most of the remainder were not unfamiliar with the practice.‡ Among prostitutes of whatever class or position, Moraglia found masturbation (though it must be pointed out that he does not appear to distinguish masturbation very clearly from homo-sexual practices) to be universal, in one group of 50 prostitutes, everyone had practiced masturbation at some period; 28 began between the ages of 6 and 11; 19,

*Ernst, "Anthropological Researches on the Population of Venezuela." *Mem. Anthrop. Soc.* Vol. III., 1870, p. 277.

†While all the evidence shows that a similar condition of things may be found everywhere among criminals, or at all events, prisoners, of the European race, I am doubtful how far the same is true of non-European races. Surgeon Caplain Buchanan, Superintendent of the Central Indian Prison, at Bhagalpur, writes to me: "I have made frequent inquiries about the prevalence of masturbation. It does not appear to be as common as I expected among prisoners. Among the well-to-do, badly trained sons of wealthy natives," he added, "I have had frequent experience of it in medical practice. I remember well the very bad case of a Christian Bible teacher, who consulted me in horror at his weakness."

‡Moraglia, "Neue Forshungen auf dem Gebiete der weiblichen Criminalität." *Zeitchrift fuer Criminal Anthropologic.* Bd. I. heft 3, 1897.

between 12 and 14, the most usual period—a precocious one—of commencing puberty; the remaining three, at 15 and 16; the average of commencing masturbation, it may be added, was 11, while that of the first sexual intercourse was 15.* In a larger group of 180 prostitutes, belonging to Genoa, Turin, Venice, etc., and among 23 "elegant cocottes," of Italian and foreign origin, Moraglia obtained the same results; everyone admitted masturbation, and not less than 113 preferred masturbation, either solitary or mutual, to normal coitus.* Among the insane, as among idiots, masturbation is somewhat more common among males, according to Blandford, in England, while Venturi, in Italy, has found it more common among females.

There appears to be no limit to the age at which spontaneous masturbation may begin to appear. I have already referred to the practice of thigh-rubbing in infants under one year of age. J. P. West has reported in detail three cases of masturbation in very early childhood—two in girls, one in a boy—in which the practice had been acquired spontaneously, and could only be traced to some source of irritation in pressure from clothing, etc.* Probably there is often in such cases a hereditary lack of nervous stability. Block has recorded the case of a girl—very bright for her age, though extremely shy and taciturn—who began masturbating spontaneously at the age of two; in this case the mother had masturbated all her life, even continuing the practice after marriage, and though she succeeded in refraining during pregnancy, her thoughts dwelt upon it, while the maternal grand mother had died in an asylum from "masturbatory insanity." Normally there appears to be a varying aptitude to experience the sexual orgasm or any voluptuous sensations before puberty. I find, on eliciting the recollections of normal persons, that in some cases there have been voluptuous sensations from casual contact with

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*Moraglia, *Archivia, di Psichiatria.* Vol. XVI. fasc. Iv-Iv. p. 313.

*Moraglia "Die Oanie beim normalen Weibe und bei den Prostitui erten." *Zt. f. Crim Anth.* 1897, p. 489.

*J. P. West, *Trans. Ohio Pediatric Soc.*, 1895. Abstract in *Medical Stand ard*, Nov. 1895.

the sexual organs at a very early age, in other cases there has been an occasional slight orgasm from early years; in yet other cases, complete sexual anæsthesia, until the age of puberty. That the latter condition is not due to mere absence of peripheral irritation is shown by a case I am acquainted with, in which a boy of seven, incited by a companion, innocently attempted at intervals during several weeks, to produce erection by friction of the penis; no result of any kind followed, although erections occurred spontaneously at puberty, with normal sexual feelings.

As to whether masturbation is more common in one sex than the other, there have been considerable differences of opinions. Tissot considered it more prevalent among women; Christian believes it commoner among men; Deslandes held that there are no sexual differences, and Garnier is doubtful. Lawson Tait, in his *Diseases of Women*, states his opinion, that while very common among boys, it is relatively rare among women, and then usually taught. Spitzka also finds it relatively rare among women. Morris considers, on the other hand, that persistent masturbation is commoner in women, and accounts for this by the healthier life and traditions of boys. Pouillet, who studied the matter with considerable thoroughness in France, came to the conclusion that masturbation is commoner among women, among whom he found it to be equally prevalent in rich and poor, and especially so in the great centers of civilization. Moraglia, also, is decidedly of the opinion, on the ground of his own observations already alluded to, that masturbation is more frequent among women; he considers that this result is natural when we call to mind the conformation of the female sexual organs with their sensitive cleft, in itself an invitation to manipulation, and he refers to the fact—a very significant fact, as I shall elsewhere have to point out—that, while in man there is only one sexual center, the penis, in woman there are several centers—the clitoris, the vagina, the uterus, the breasts—and he mentions that he knew a prostitute, a well developed brunette of somewhat nervous temperament, who boasted that she knew fourteen ways of masturbating herself.

My own opinion is that the question of the sexual distribution of masturbation has been somewhat obscured by that harmful tendency, to which I have already alluded, to concentrate attention on a particular set of auto-erotic phenomena. We must group and divide our facts rationally if we wish to command them. If we confine our attention to very young children, the available evidence shows that the practice is much more common in females, and such a result is in harmony with the fact that precocious puberty is most often found in female children.* At puberty and adolescence occasional or frequent masturbation is very common in both boys and girls, though, I believe, less common than is sometimes supposed; it is difficult to say whether it is more prevalent among boys or girls; one would be inclined to conclude that it prevails chiefly among boys, if it were not for the fact that boys' traditions and their more active life keep the tendency in abeyance, while in girls there is much less frequently any restraining influence of corresponding character.† In my study of inversion I have found that ignorance and the same absence of tradition are probably factors in the prevalence of homosexual tendencies among women.‡ After adolescence, I think there can be no doubt that masturbation is more common in women than in men. Men have by this time mostly adopted some method of sexual gratification with the opposite sex; women are to a much larger extent shut out from such gratification; moreover, while in rare cases women are sexually precocious, it more often happens that their sexual impulses only gain

*In many cases, of course, the physical precocity is associated with precocity in sexual habits. An instructive case is reported (ALIENIST AND NEUROLIGIST, Oct., 1895) of a girl of 7, a beautiful child of healthy family, and very intelligent, who from the age of 3, was perpetually masturbating when not watched. The clitoris and mons veneris were those of a fully grown woman, and the child was as well informed upon most subjects as an average woman. She was cured by care and hygienic attention, and when seen last was in excellent condition.

†Morris has also pointed out the influence of traditions in this respect. "Among boys," he remarks, "there are traditions to the effect that self-abuse is harmful, so that about the only boys who injure themselves badly by masturbation are the ones whose parents keep them away from other boys, for fear that they may learn bad habits, and the boys who live in thinly settled country districts. Among the girls, however, there are no such raving traditions, and when preputial adhesions call the girl's attention to the clitoris, she may become a persistent masturbator." I quote this passage because I think it attributes somewhat too large a part to traditions, which is by no means the only restraining influence.

‡H. Ellis, *Studies in the Psychology of Sex*. Vol. I. "Sexual Inversion."

strength and self-conciousness after adolescence has passed. I have been much impressed by the frequency with which masturbation is occasionally (especially about the period of menstruation) practiced by active, intelligent and healthy women, who otherwise lead a chaste life. This experience is confirmed by others, who are in a position to ascertain the facts among normal people; thus a lady, who has received the confidence of many women, told me that she believes that all women, who remain unmarried, masturbate, as she found so much evidence pointing in this direction. This statement certainly needs some qualification, though I believe it is not far from the truth as regards young and healthy women who, after having normal sexual relationships, have been compelled for some reason or other to break them off and lead a chaste life. But we have to remember that there are some women, evidently with a considerable degree of congenital sexual anæsthesia (no doubt in some respect or another below the standard of normal health), in whom the sexual instinct has never been aroused, and who not only do not masturbate, but do not show any desire for normal gratification; while in a large portion of other cases the impulse is gratified passively in ways I have already referred to. The auto-erotic phenomena, which take place in this way, spontaneously, by yielding to reverie, with little or no active interference, certainly occur much more frequent in women than in men. On the other hand, contrary to what one might be led to expect, the closely related auto-erotic phenomena during sleep seem to take place more frequently in men, although in women, as we have found ground for concluding, they reverberate much more widely and impressively on the waking psychic life.

We must now turn to that aspect of our subject which in the past has always seemed the only aspect of auto-erotic phenomena meriting attention: the symptoms and results of masturbation. It appears to have been an Englishman, Bickers, who, in the seventeenth century, first called attention to the supposed evils of masturbation, by writing a book, *Onania*, which produced a great sensation, passed

through eighty editions and was translated into German. Tissot, a physician of Launsanne, followed with his *Traité de l'Onanisme*, first published in Latin (1760), then in French (1764), and afterwards in nearly all European languages. I have not read it, but according to Christian,* it is a production full of amusing exaggeration and rhetoric, zealously setting forth the prodigious evils of masturbation in a style which combines the strains of Rousseau, with a vein of religious piety. Tissot included only manual self-abuse under the term, "onanism;" shortly afterwards, Voltaire, in his *Dictionnaire Philosophique*, took up the subject, giving it a wider meaning and still further popularizing it. Finally Lallemand, at a somewhat later period, wrote a book which was indeed more scientific in character, but which still sought to represent masturbation as the source of all evils. These four writers —Bickers, Tissot, Voltaire, Lallemand—are certainly responsible for much. The mistaken notions of many medical authorities, carried on by tradition, even down to our own time, the powerful lever which has been put into the hand of unscrupulous quacks, the suffering, dread and remorse experienced in silence by many thousands of ignorant and often innocent young people, may all be traced, in large measure, back to these four well-meaning, but misguided authors.

There is really no end to the list of supposed symptoms and results of masturbation, as given by various medical writers during the present century. Insanity, epilepsy, numerous forms of eye diseases, supra-orbital headache, occipital headache (Spitzka), strange sensations at the top of the head (Savage), various forms of neuralgia (Anstie, Chapman), tenderness in the lower dorsal region of the skin (Chapman), mammary tenderness (Lacassagne), the appearance of vesicles on wounds (Baraduc), acute and other forms of cutaneous erruptions (Clipson), dilated pupils (Skene, Lewis, Moraglia), eyes directed upwards and sideways (Pouillet), dark rings around the eyes, catarrh of uterus and vagina (Winckel, Pouillet), hypertrophied sexual organs, pale and discolored skin (Lewis, Mor-

*Art "Onanisme." *Diet ency des Scy med.*

aglia), warts on the hands in women (Durr, Kriechmar, Von Oye), hallucinations of smell, hallucinations of hearing (Griesinger, Lewis), a statuesque bearing, indican in the urine (Herter), an indescribable odor of the skin in women (Skene)—these are but a few of the signs and consequences of masturbation, given by various prominent authorities. That many of these manifestations do occur in connection with masturbation is unquestionable, there is also good reason to believe that some of them may be the results of masturbation acting on an imperfectly healthy organism. But in all such cases we must speak with great caution, for there appears to be little reliable evidence to show that simple masturbation, in a well born and healthy individual, can produce any evil results beyond slight functional disturbances, and these only when it is practiced in excess. To illustrate the real pathological relationships of masturbation, a few typical and important disorders may be briefly considered:

The delicate mechanism of the eye is one of the first portions of the nervous apparatus to be disturbed by any undue strain on the system; it is not surprising that masturbation should be widely incriminated as a cause of eye-troubles. If, however we inquire into the results obtained by the most cautious and experienced ophthalmological observers, it grows evident that masturbation, as a cause of disease of the eye, becomes merged into wider causes. In Germany, Hermann Cohn, the distinguished ophthalmic surgeon of Breslau, has dealt fully with the question.† Cohn, who believes that all young men and women masturbate to some extent, finds that masturbation must be excessive for eye-trouble to become apparent. In most of his cases there was masturbation several times daily during from five to seven years, many during ten years, and one during twenty-three years. In such cases we are obviously dealing with abnormal persons, and no one will dispute the possibility of harmful results; in some of the cases, when masturbation was stopped, the eye-trouble improved. Even in these cases,

†"Augenkrankheiten bei Masturbanten," Knapp-Schweigger's *Archiv fuer Augenheilkunde*. Bd. XI., p. 198, 1882.

however, the troubles were but slight, the chief being, apparently, photopia (a subjective sensation of light) with otherwise normal conditions of pupil, vision, color-sense and retina. In some cases, however, there was photophobia, and he has also found paralysis of accommodation and conjunctivitis. In England, Power has investigated the relations of the sexual system to eye disease. He is inclined to think that the effects of masturbation have been exaggerated, but he believes that it may produce such for the most part trivial complaints as photopiâe, muscâe, muscular asthenopia, possibly blepherospasm, and perhaps conjunctivitis. He goes on, however, to point out that in the same cases more serious complaints are caused by excess in normal coitus, by sexual abstinence, and especially by disordered menstruation. Thus we see that even when we are considering a mechanism so delicately poised and one so easily disturbed by any jar of the system as vision, masturbation produces no effect except when carried to an extent which argues an hereditarily imperfect organism, while even in these cases the effects are usually but slight, are moreover, in no respect specific, but are paralleled and even exceeded by the results of other disturbances of the sexual system.

Let us turn to the supposed influence of masturbation in causing insanity and nervous diseases. Here we may chiefly realize the immense influence exerted on medical science by Tissot and his followers during a hundred years. Ellis, an alienist of considerable reputation at the beginning of the present century, could write with scientific equanimity that the majority of cases of insanity in public asylums are due to masturbation. Throughout the century, even down to the present day, this point of view has been traditionally preserved in a modified form; and in apparent ignorance of the enormous prevalence of masturbation; and without, so far as can be seen, any attempt to distinguish between cause and effect, or to eliminate the hereditary neuropathic element, many alienists have set down a large proportion of cases of insanity, idiocy, epilepsy and diseases of the spinal cord to uncomplicated masturbation. Thus, at the Matteawan State Hospital (New York) for criminal

lunatics and insane prisoners, from 1875 to 1894, masturbation was the sole assigned cause of insanity in 85 men (out of 1150) and was connected with various causes in a few more cases. According to Dr. Clara Barrus, among 121 cases of insanity in young women, masturbation is the cause in ten cases.† It is unnecessary to multiply examples, for this traditional tendency is familiar to all.

It appears to have been largely due to the genius of Griesinger in the middle of the present century, that we owe the first authoritative appearance of a saner, more discriminating view regarding the results of masturbation. Although still to some extent fettered by the traditions prevalent in his day, Griesinger saw that it was not so much masturbation itself, as the feelings aroused in sensitive minds by the social attitude towards masturbation, which produced evil effects. "That constant struggle," he wrote, "against a desire which is even overpowering, and to which the individual always in the end succumbs, that hidden strife between shame, repentances, good intention and the irritation which impels to the act, this, after not a little acquaintance with onanists, we consider to be far more important than the primary direct physical effect." He adds that there are no specific signs of masturbation, and concludes that masturbation is oftener a symptom than a cause. The general progress of educated opinions since that date has in the main confirmed and carried forward the results cautiously stated by Griesinger. That distinguished alienist thought that when practiced in childhood, masturbation might lead to insanity. Berkhan, in his investigation of the psychoses of childhood, found that in no single case was masturbation a cause. Vogel, Uffelmann and Emminghaus, in the course of similar studies, have all come to almost similar conclusions.† It is only on a congenitally morbid nervous system, Emminghaus insists, that masturbation can produce any serious results. Chris-

†Clara Barrus. "Insanity in Young Women." *Journal of Nervous and Mental Disease* June, 1896.

†See, for instance, H. Emminghaus, *Die Psychosen des Kindesalters, Gerlandt's Handbuch der Kinder-Krankheiten, Nachtrag II.*, pp. 61-63.

tain, during twenty years' experience in hospitals, asylums and private practice in town and country, has not found any seriously evil effects from masturbation.* He thinks, indeed, that it may be a more serious evil in women, than in men. But Näcke, who has given special attention to this point, could not find that masturbation is a definite cause of insanity in women in a single case.† Koch also reaches a similar conclusion, as regards both sexes; though he admits that masturbation may cause some degree of psychopathic deterioration. Even in this respect, however, he points out that "when practiced in moderation it is not injurious in the certain and exceptionless way in which it is believed to be in many circles. It is the people whose nervous systems are already injured who masturbate most easily and practice it more immoderately than others"; the chief source of its evil is self-reproach and the struggle with the impulse.‡ Kahlbaum, it is true, under the influences of the older tradition, when thirty years ago he erected katatonia, into a separate disorder (not always accepted in later times) regarded prolonged and excessive masturbation as a chief cause, but I am not aware that he ever asserted that it was a sole and sufficient cause in a healthy organism. Marro, in his recently published admirable and detailed study of the normal and abnormal aspects of puberty, accepts a form of masturbatory insanity; but the only illustrative case he brings forward is a young man, possessing various stigmata of degeneracy and the son of an alcoholic father; such a case tells us nothing regarding the results of simple masturbation.§ Even Spitzka, who maintained several years ago the traditional views as to the terrible results of masturbation, and recognized a special "insanity of masturbation," stated his conclusions with a caution that undermined his position; "self-abuse" he concluded, "to become a sole cause of insanity, must be begun early and carried very far. In persons of sound antecedents, it rarely

*Christian. Art. "Onanisma," *Dict ency des sci, med.*

†Näcke *Verbrechen und Wahnsinn beim Weibe.* 1894, p. 57.

‡J. L. A. Koch. *Die Psychopathischen Minderwertigkeiten*, 1892, P. 273, *et seq.*

§Marro. *La Pubertà*, Turin, 1898, p. 174.

under these circumstances suffices to produce an actual vesania."* When we remember that there is no convincing evidence to show that masturbation is "begun early and carried very far" by "persons of sound antecedents," the significance of Spitzka's "typical psychosis of masturbation" is somewhat annulled. It is evident that these distinguished investigators, Marro and Spitzka, have been induced by tradition to take up a position which their own scientific consciences have compelled them practically to evacuate.

The testimony of expert witnesses with regard to the influence of masturbation in producing other forms of psychoses and neuroses, is becoming equally decisive; and here also the traditions of Tissot are being slowly effaced. "I have not, in the whole of my practice," wrote West over thirty years ago, "out of a large experience among children and women, seen convulsions, epilepsy or idiocy *induced* by masturbation in any child of either sex. Neither have I seen any instance in which hysteria, epilepsy or insanity in women after puberty was *due* to masturbation, as its efficient cause."† Gowers speaks somewhat less positively, but regards masturbation as not so much a cause of true epilepsy as of untypical attacks, sometimes of character intermediate between the hysteroid and the epileptoid form; this relationship he has frequently seen in boys.‡ Leyden, among the causes of diseases of the spinal cord, does not include any form of sexual excess. Erb remarks: "In moderation, masturbation is not more dangerous to the spinal cord than natural coitus, and has no bad effects."§

Reviewing the general question of the supposed grave symptoms and signs of masturbation, and its pernicious results, we may reach the conclusion that in the case of moderate masturbation in healthy, well-born individuals, no pernicious results follow. With regard to the general signs, we may accept as concerns both sexes, what the Obstetrical and Gynæcological Society of Berlin decided in 1866,

*E. C. Spitzka. "Cases of Masturbation." *Journal of Mental Science*, July, 1888.

†Charles West. *Lancet*, 17 Nov., 1866.

‡Gowers. *Epilepsy*, 1881, p. 31.

§Ziemssen's *Hand-buch*, Bd. XI.

in a discussion of it in women, that there are none which can be regarded as reliable.* With regard to its alleged pernicious results, we may agree with the conclusion reached by Sir James Paget many years ago in his lecture on "Sexual Hypochondriasis," "Masturbation," he says, "does neither more nor less harm than sexual intercourse practiced with the same frequency in the same conditions of general health and age and circumstances. I wish," he adds, "that I could say something worse of so nasty a practice." We may perhaps say "something worse," by pointing out that if it does no more harm than sexual intercourse, it usually does less good. And we may conclude finally, with Clouston, that the opposing views on the subject may be simply explained by the fact that the writers on both sides have ignored or insufficiently recognized the influence of heredity and temperament. They have done precisely what so many unscientific writers on inebriety have continued to do unto the present day, when describing the terrible results of alcohol without pointing out that the chief factor in such cases has not been the alcohol, but the organization on which the alcohol acted. Many healthy persons of sound stock can bear witness that not only the moderate use of alcohol, but even occasional excess, produce no serious result. Excess, either in alcohol or in masturbation, may act, according to the familiar old-fashioned image, like the lighted match. But we must always remember the obvious truth, that it makes a considerable difference whether you threw your lighted match into a powder magazine or into the sea.

While we may thus dismiss the extravagant views widely held during the past century, concerning the awful results of masturbation, as due to ignorance or a false tradition, it must be pointed out that even in healthy or moderately healthy individuals, any excess in solitary self-ex-

*With regard to the Legludic signs, the same conclusion is reached by Legludic (in opposition to Martineau) on the basis of a large experience. He has repeatedly found in young girls, who acknowledged frequent masturbation, that the organs were perfectly healthy and normal, and his convictions are the more noteworthy, since he speaks as a pupil of Tardieu who attached very great significance to the local signs of sexual perversity and excess. Legludic, *Notes et Observations, de Medicine Legale*, 1896, p. 95.

citement may still produce results, which, though slight, are yet harmful. The skin, digestion, circulation, may all be disordered, neuralgia may occur, and even some of the manifold symptoms of neurasthenia; as in normal sexual excess or in undue frequency of sexual excitement during sleep, there is a certain general lowering of nervous tone. No doubt the most frequent and the most characteristic result—as distinguishing masturbation from normal sexual relationships—is, on the psychic side, a morbid heightening of self-conciousness without any co-ordinated heightening of self-esteem. The man or woman, who is kissed by a desirable and desired person of the opposite sex, feels a satisfying sense of pride and elation, which must always be absent from the manifestations of auto-erotic activity. This must be so, even apart from the masturbator's consciousness of the general social attitude towards his practices and his dread of detection, for that may also exist as regards normal coitus without any corresponding psychic effects. The masturbator, if his practice is habitual, is thus compelled to cultivate an artificial consciousness of self-esteem, and may show a tendency to mental arrogance. Self-righteousness and religiosity constitute, as it were, a protection against the tendency to remorse. A morbid mental soil is of course required for the full development of these characteristics. The habitual masturbator, it must be remembered, is usually a shy and solitary person; individuals of this temperament are especially predisposed to excesses in all the manifestations of auto-eroticism, while the yielding to such tendencies increases the reserve and the horror of society, while at the same time producing a certain suspicion of others. Auto-erotic excesses of this kind appearing during adolescence in young men and women of intelligence—whatever absence of gross injury to health there may be—often produce a certain degree of psychic perversion, and tend to foster false and high-strung ideals of life. I have already quoted Anstie's remarks on the frequent connection between masturbation and premature false work in literature and art. It may be added that excess in masturbation has often occurred in men and women whose

work in literature and art cannot be described as premature and false. K. P. Moritz, in early adult life, gave himself up to excess in masturbation, and up to the age of thirty had no relations with women. Rousseau, in his *Confessions*, admirably describes how his own solitary, timid and imaginative life found its chief sexual satisfaction in masturbation. Goethe, it has been asserted, at one time masturbated to excess; I am not certain on what authority the statement is made, probably on a passage in the seventh book of *Dichtung und Wahrheit*, in which, describing his student life at Leipsig, and his loss of Aennchen, owing to his own neglect of her, he tells how he revenged that neglect on his own physical nature by foolish practices from which he thinks he suffered for a considerable period. That at the present day, eminence in art and literature may be combined with the excessive practice of masturbation, is a fact of which I have unquestionable evidence. How far masturbation, in moderately healthy persons living without normal sexual relationships, may be considered normal, is a difficult question, only to be decided with reference to individual cases. As a general rule, it may be laid down that when masturbation is only practiced at rare intervals, and *faute de mieux*, in order to obtain relief for physical oppression and mental obsession, it may be regarded as the natural result of unnatural circumstances, and provided there is no remorse, it is wholly free from injurious consequences; but that when—as in shy and imaginative persons, perhaps of slightly neurotic temperament, may sometimes become the case—it is practiced in preference to sexual relationship, it at once becomes abnormal and may possibly lead to a variety of harmful results, mental and physical.†

It must always be remembered, however, that while the

†A somewhat similar classification has already been made by Max Dessoir, who points out that we must distinguish between onanists, *aus Noth*, and onanists, *aus Leidenschaft*, the latter group alone being of really serious importance. I may mention here that there are individual differences with regard to the emotional conditions which predispose to masturbation; though, with some persons, to be in love, makes masturbation impossible, with others, it acts as an incentive: the former are impelled to reserve themselves for the beloved person, the latter yield to the emotional abandonment produced by the thought of the beloved. The former condition seems more normal, especially in happy love; the latter is more apt to occur with unsatisfied love, and with trifling sexual attractions which are not likely to be realized.

practice of masturbation may be harmful in its consequences, it is also, in the absence of normal sexual relationships, not without good results. In the medical literature of the century, a number of cases have been incidentally recorded (as by Gall, Clouston, Turnbull, Moll, Coe, etc.) in which the patients found masturbation beneficial to some diseased condition. Such cases might certainly have been enormously increased, had there been any open-eyed desire to discover them. Judging from my own observations among both sexes, I should say that in normal persons, well passed the age of puberty, masturbation, so far from being a form of vice, would be little practiced except for the physical and mental relief it brings. Many vigorous and healthy unmarried women, living a life of sexual abstinence, have asserted emphatically, that only by sexually exciting themselves, at intervals, could they escape from a condition of nervous oppression and sexual obsession which they felt to be a state of hysteria. In most cases this happens about the menstrual period, and whether accomplished as a purely physical act, or by the co-operation of the imaginative representation of a desired person, the practice is not cultivated for its own sake during the rest of the month.

There is some interest in briefly reviewing the remarkable transformation in the attitude towards masturbation from Greek times down to our own day. The Greeks, as also the Romans, treated masturbation with little or no opprobrium. They contemplated it with almost absolute indifference, sometimes even with approval, for Plutarch tells us that Chrysippus praised the famous philosopher, Diogenes, for masturbating in the market place and for exclaiming, "Would to heaven I could also satisfy my stomach by rubbing it!" In classic days, doubtless, masturbation and all other forms of the auto-erotic impulse were comparatively rare. So much scope was allowed in early adult age for homosexual and later for heterosexual relationships that any excessive or morbid development of solitary self-indulgence could seldom occur. Hence, probably, the serene indifference with which the ancients viewed masturbation. The case was altered when Christian ideals

became prominent. Christian morality strongly proscribed sexual relationships except under certain specified conditions. It is true that Christianity discouraged all sexual manifestations, and that therefore its ban fell equally on masturbation, but obviously masturbation lay at the weakest line of defence against the assaults of the flesh; it was there that resistance would most readily yield. Christianity thus led to a considerable increase of masturbation. The attention which the theologians devoted to its manifestations clearly bears witness to their magnitude. It is noteworthy that Mohammedan theologians regarded masturbation as a Christian vice. In Islam both doctrine and practice tended to encourage sexual relationships and not much attention was paid to masturbation, nor even any severe reprobation directed against it. Omer Haleby remarks that certain theologians of Islam are inclined to consider masturbation and similar practices in vogue among Christians as allowable to devout Mussulmans when alone on a journey; he himself regards this as a practice good neither for soul nor body (seminal emissions during sleep providing all necessary relief); should, however, a Mussulman fall into this error, God is merciful!*

Protestantism, no doubt, in the main accepted the general Catholic tradition, but the tendency of Protestantism, in reaction against the minute inquisition of the earlier theologians, has always been to exercise a certain degree of what it regarded as wholesome indifference toward the less obvious manifestations of the flesh. Thus in Protestant countries masturbation seems to have been almost ignored until Tissot, combining with his reputation of a physician the fanaticism of a devout believer, raised masturbation to the position of a colossal bogy which during a hundred years has not only disturbed the relations of cause and effect in these matters, but has been productive of incalculable harm to ignorant youth and tender consciences. During the past thirty years the influence of many distinguished physicians—a few of whose opinions I have already quoted—has gradually dragged the bogy down from its pedestal,

**El Ktab*, Traduction de Paul de Regla, Paris, 1893.

and there are now few authorities with a position to lose who venture to follow the tradition of Tissot. There is even a tendency to-day to regard masturbation, with various qualifications, as normal. Tillier, for instance, remarks that since masturbation appears to be universal among the higher animals we are not entitled to regard it as a vice; it has only been so considered because studied exclusively by physicians under abnormal conditions.† Venturi, a well-known Italian alienist, regards masturbation as strictly physiological in youth; it is the normal and natural passage towards the generous and healthy passion of early manhood; it only becomes abnormal and vicious, he holds, when continued into adult life.†

I do not consider that we can decide the precise degree in which masturbation may fairly be called normal so long as we take masturbation by itself. We are thus, in conclusion, brought back to the point which I sought to emphasize at the outset. Masturbation belongs to a group of auto-erotic phenomena. From one point of view it may be said that all auto-erotic phenomena are abnormal, since the natural aim of the sexual impulse is sexual conjunction and all exercise of that impulse outside such conjunction is away from the end of nature. But we do not live in a state of nature which answers to such demands; all our life is "unnatural." And as soon as we begin to restrain the free play of sexual impulse towards sexual ends, at once auto-erotic phenomena inevitably spring up on every side. There is no end to them; it is impossible to say what finest elements in art, in morals, in civilization generally, may not really be rooted in an auto-erotic impulse. Auto-erotic phenomena are inevitable. The only question before us is the degree and the character of the particular manifestation which may most harmfully or most beneficially be permitted. And that, it seems to me on a review of the whole series of phenomena, is not a question on which we are entitled to dogmatize. Every case must be judged on its own merits. We have to recognize that while in one sense all forms of auto-erotism are unnatural, in another sense

†Tillier, *L'Instinct Sexuel*, Paris, 1889, p. 270.

they are all natural. In different cases the repressed impulse will take on different forms. It is our wisest course to recognize the inevitableness of such manifestations under the perpetual restraints of civilized life, and while avoiding any attitude of excessive indulgence or indifference, to avoid also any attitude of excessive horror, for our horror not only blinds us by effectually putting the facts to flight, but itself serves to manufacture artificially a greater evil than that which we seek to combat. In the manifestations of auto-erotism we are concerned, not with a form of insanity, not even necessarily with a form of depravity, but with the inevitable by-play of that mighty instinct on which the animal creation rests.

SELECTIONS.

NEUROTHERAPY.

THE TREATMENT OF VERTIGO KNOWN AS MENIERE'S DISEASE.—De La Tourette (*Semaine Médicale*, 1897, p. 301, No. 38) reports the case of a man fifty-eight years old. The patient, who had previously been quite well, was taken suddenly one morning in June, 1893, with a violent vertigo, having all the features of Meniere's disease. Following this the patient complained of a persistent noise in the right ear, and of a continuous vertigo for which he was given quinine in large doses with excellent results. Apropos of this case the author takes up the history, causation, lesions and diagnosis of Meniere's disease. He points out the role played by hyperexcitability of the labyrinth in the production of vertigo, and dilates on the efficacy of quinine in the treatment of the auricular forms of vertigo. The medicament should be given in ten-grain doses once or twice a day for a period of at least a fortnight.—*Post-Graduate.*

[This is a larger dose than has hitherto been recommended and we quite agree with the author.—ED.]

REPUTED SURE CURE FOR RATTLESNAKE BITE.—The discovery of this fact is claimed by Prof. Thos. R. Frazer, of the University of Edinburg, Scotland. But a lay writer in the *Scientific American* says he has seen two kinds of plants to cure these bites, one called la golondrina by the Spaniards and meaning the swallow, and the rattlesnake weed, and both claimed to be very effective. But he knows from actual experience that the gall of the snake is an infallible cure. Even when the wound is already well inflamed, a single drop of the bile upon the wound is enough. Thus a dog whose head had already swollen to

double its natural size was cured almost instantaneously by the application of the gall to the wound. The bile may be preserved in alcohol, bladder and all—or it may be dried, requiring moistening before application, saliva having sufficed for this purpose in one case he has seen.—*Medical Council.*

A WINTER REMEDY.—That Codeine has an especial effect in cases of nervous cough, and is, like morphine, capable of controlling excessive coughing in lung and throat affections, through its power as a nervous calmative, owing to its special action, as Bartholow states, on the pneumogastric nerve. It does not arrest secretion in the respiratory and intestinal tract like some other agents of its class.

The coal-tar products are known to have power as analgesics and antipyretics. Some products of the coal-tar series are safe, while others are depressant. Antikamnia has been pronounced in actual practice, and is accepted, as the safest and surest of the coal-tar products. Five grain "Antikamnia and Codeine Tablets," each containing 4¾ grains Antikamnia, ¼ grain Sulphate of Codeine. The proportions most frequently indicated in the various neuroses of the throat, and coughs incident to lung affections, are offered by our Antikamnia friends in convenient prescription form.

THYROID MEDICATION IN MYXEDEMA.—In a discussion before the Southern California Medical Society, reported in *Southern California Medical Practitioner*, Dr. H. G. Brainerd made the following expression:

"It is one of the wonders of modern medicine that the formerly incurable disease, myxedema—where the unfortunate victim was doomed to worse than death, a life of dementia—is now cured by the use of thyroid medication. The other day I saw a woman who, one year ago, was a hopeless imbecile, with hardly any hair, and an elephantine countenance, who had been in a deplorable condition for twenty years, who, under the proper use of thyroid extract, had in two months' time made a most radical change, and was alerady much like herself of twenty years ago.

GODDING'S TREATMENT OF PARESIS.—Concerning this subject Dr. W. W. Godding, Superintendent of the Government Hospital, in his last (1897) annual report, says: "The experience of another year with the active treatment of selected cases of paresis by the wet pack, with cold to the head and enforced rest followed by a thorough massage, has not led to its abandonment; rather to a belief in its efficacy in a considerable percentage of the cases thus treated, in its power to effect at least a temporary improvement and now and then an arrest in the progress of the disease for an indefinite period. In a disease whose prognosis has hitherto been so absolutely hopeless even palliative treatment is worthy of consideration. It has been erroneously stated in the public press that we claimed to cure paresis. This probably grew out of the somewhat detailed account, in the last medical supplement, of the case of a musician, remarkable for the return of an apparently normal physical and mental condition after more than eighteen months' active progress of the disease. It is important that our position in this should be neither misrepresented or misunderstood. While not denying, and even hoping, that in some such direction in fortunate cases a cure may yet be found, all that we have claimed is that a considerable percentage of the cases of paresis subjected to this treatment, where it has been persevered in, have shown distinct physical and mental improvement, and in some there has been an arrest, more or less complete, in the further progress of the brain disease. If the facts in the individual case bear out these conclusions the treatment ought to be made public, to the end that others may decide on its therapeutic value and what are its limitations in their hands.

FULL DOSES OF NUX-VOMICA IN INSUFFICIENCY OF THE OCULAR MUSCLES.—Every ophthalmologist and many general practitioners recognize the fact that insufficiency of the ocular muscles produces much headache and other discomforts and while it is true that the proper glassing of these patients gives them great relief, either at once

or in time, it is also a fact that the physician or ophthalmologist who administers drugs properly can materially aid the patient on his road toward recovery. In this connection it is of interest to note the value of full doses of nux vomica. There can be no doubt, in patients who have used their eyes excessively, at the same time suffering from insufficiencies of the ocular muscles, that rapidly ascending doses of this drug give them very extraordinary relief, particularly if at the same time there is given with it some arsenic, or if anemia is marked, some easily assimilated preparation of iron.

In the *Therapeutic Gazette* for 1886, Dr. Musser, of Philadelphia, published an interesting clinical paper in which his experiments seemed to prove that the dosage of nux vomica was in inverse proportion to the age of the patient, or in other words that the susceptibility increased with the age; and this is of practical importance to ophthalmologists who desire to administer it for the purpose named, because it shows that children who frequently suffer from ocular insufficiencies can be given full doses with safety. One of Musser's patients took two hundred drops three times a day and he also found that between the ages of fifteen and forty that forty-five drops three times a day were generally well borne. Because of these studies de Schweinitz began using full doses of tincture of nux vomica for ocular insufficiency with surprising results, and he also found that he got much better results from administering it in one of its official preparations than he did if he gave strychnine, as this single alkaloid did not seem to possess the therapeutic advantages of the comparatively crude preparation, perhaps because the patient was deprived of the brucine which may be therapeutically active in failure of the ocular muscles. It is to be remembered that full doses of nux vomica can only be given to such patients if there are no evidences whatever of retinitis or retinal irritability characterized by dread of light and other symptoms. If it is given to such patients the headache and photophobia will become worse and the patient instead of improving under the treatment will complain bitterly of the exaggeratio n of

his symptoms. It is important to remember that while moderate doses may be given at first for this condition the best therapeutic results are only to be obtained by the use of this drug in ascending doses in much the same way that we give increasing doses of Fowler's solution in chorea.—*Therapeutic Gazette.*

CACTINA.—C. B. Matthews, M. D., Kent, Ind., attests the value of Cactina Pillets in cases of weak and irregular action of the heart, after four years use. They stimulate the heart and improve that organ permanently, he says.

BRAIN-SURGERY.—Dr. Edward D. Fisher, of New York, in a recent paper on justifiable surgical interference in cerebral disease, concludes that operative measures are warranted in the following conditions: 1. Fractures of the skull causing pressure-paralysis and coma. 2. Meningeal hemorrhage (traumatic cases and pachymeningitis hæmorrhagica). 3. Tumors of the brain when situated in the cortex or in the cerebellum, but not when deeply located, or at the base of the brain. 4. Localized epileptic seizures of the Jacksonian type. 5. Cerebral abscesses, most commonly the sequelæ of otitis media or gunshot wounds. —*Philadelphia Medical Journal.*

PERSONAL EXPERIENCE WITH CANNABIS INDICA.—Under the caption "Ingestion of Extract of Cannabis Indica," Robert C. Bicknell, M. D., 128 East Fifty-seventh Street, New York, in a letter to Prof. H. C. Wood, gives his personal experience with this drug in toxic doses as follows, which will be found of interest to neuriatric clinicians, somewhat akin to the personal experience of De Quincy with opium.

Dr. H. C. Wood, University of Pennsylvania, Philadelphia, Pa.: Dear Sir—I have repeatedly read with much interest the account, in various editions of your work on "Therapeutics," of your experience following the ingestion of an American extract of cannabis indica.

As supplementary to this, in a measure, I should like to submit my own experience after taking some extract of English manufacture. Having had only a light lunch at 1 p. m., I took at five o'clock three grains of the soft extract

in a gelatin capsule. I noted carefully any unusual sensations during the following hour, and can remember the major portion of the next three hours' occurrences. For half an hour there was nothing unusual to record. At 5:30 a barely perceptible headache was noticed, dull in character, and lasting about fifteen minutes. At this time, 5:45, I noticed that I was longer in comprehending anything said to me. Quite a perceptible interval elapsed (or so it seemed) before even simple statements were clearly comprehended, and answering speech seemed also slower than usual. At 5:50 I was writing, and on finishing a sentence there was a slight spasmodic contraction of the muscles of the hand and arm, causing an impairment of the symmetry of the writing. This spasm seemed a signal for the precipitation of a storm of nervous phenomena. I looked at my hands, and the fingers appeared enormously long and large. Speech was somewhat confused, words being transposed chiefly, there being also hesitation in the choice of words. The pulse, which had not been previously noticeably affected, became suddenly very rapid and full. The rate was 100 at a time and a minute later 120, the heart thumping like as if I had rapidly climbed a flight of stairs. Before six o'clock was reached I had become nearly blind, periods of almost complete darkness following each other at short intervals. When speaking to a person and looking at him steadily, or on looking closely at any conspicuous object, I could see them clearly enough, but all else was darkness.

At the beginning of these phenomena—at 5:40 to be exact—the muscles of the back and neck, particularly those attached to the occiput, became contracted tonically and painfully. This was for sometime the most pronounced sensation. By active friction over the muscles the spasm relaxed and the pain was relieved temporarily. All along the spine the muscles contracted, causing a marked curving of the body backward. At this time I began to have a sense of a dual existence. I was aware that the experience through which I was passing was my own, yet I had the sense that I was watching the experience of another. This impression deepened as time went on, and after a while it was only by the most violent effort of will that I could bring myself to a realization that these sensations and occurrences were in the regular course of events, and that I was not merely a witness of them. I walked out in the air at six, and while objects seemed far away which were really near and there was an apparent darkness much

greater than the real, there was no unsteadiness of gait and I noticed everything that was transpiring. Shortly after this (a few minutes past six) I walked to the house of a physician, whom I knew, a half block away, and climbed a flight of a dozen steps without difficulty. While speaking to the doctor a minute later, however, I tried to walk towards him and stumbled, falling nearly, and grasped his shoulders. Lying down then, I became mostly unconscious, but was able to bring myself to a realization of my surroundings by violent effort of will, but almost at once returned to my illusions. Before I became unconscious I noticed to some extent the prolongation of time. The doctor was a little alarmed at the symptoms I presented (unnecessarily, I thought), and as I had told him just what I had done, he began looking up the subject of cannabis in his books. I noticed the leaves turn and they seemed enormously long in falling. His movements were slow to a patience-destroying point, and he seemed ten minutes in crossing the room. One of the most noticeable things after lying down was a sense of fulness in the abdominal blood-vessels. The abdominal aorta seemed full to utmost distention, and I recall a fear lest it should burst; the sense of fulness was extremely painful. The heart action was very rapid now (6.15 or 6.20). I was at no time fearful of a fatal result. The light on the ceiling above me was scintillating and formed soon a part of my subsequent sensation. For about an hour after this I could recall nothing of what transpired, except some violent efforts at raising me and commands to drink some mustard-water and coffee, which was prepared for me. After 6:30 my sensations were vitiated by an emetic given me by the physician, under the impression (which I consider erroneous) that it was necessary, and some hypodermics of brandy and ammonia, which he thought I needed. At about 7 p. m., I "came to" with some suddenness, but was a little dazed for some hours. At eleven I went to sleep, and awoke as usual in the morning feeling no effects from my experience; in fact, not remembering it until something called it to mind after rising. There was no sensation in the whole experience which I should call pleasant, nothing that would suggest a desire for its repetition. The only vital function notably disturbed was the circulation. The breathing was apparently normal throughout. No effect was produced on the digestive apparatus. After some hours the secretion of urine was markedly increased. I noted no effect on the skin. I have a hypersensitive spinal nervous system. To

this I largely attribute the marked effect on this part of the nervous system in my case. I thought the reflex excitability was somewhat increased during the several days succeeding. The heaviness of the limbs before sleeping, which you mention, I experienced, though in less marked degree, for the few hours after I became conscious and before sleeping, movements were very sluggish and there was a decided indisposition to exertion of any kind. During this time all surroundings seemed in a hazy, not wholly real, condition, consciousness not being perfect, and I readily relapsed into a dozing state, being nearly asleep, but conscious of what was going on and hearing and comprehending all that was said. If there are any points that I have omitted to mention and that you might consider of value to you if detailed, I will cheerfully answer any inquiries which it may occur to you to make.

Very truly,

[SIGNED AS ABOVE].

THE TREATMENT OF THE PAINS OF ATAXIA BY METHYLENE BLUE.—It is stated in the *Journal des Practiciens* that Lemoine has found this substance of value for the relief of ataxic pains. In two cases he failed to obtain good results from its use, but in five out of seven others there was a great diminution in the intensity and frequency of the pains, the relief being complete and prolonged. The pains which seem to be best relieved by methylene blue are the darting pains in the limbs and the sensation as if a tight band were being drawn about the patient. He asserts that the effect of the methylene blue is very rapid and that the pain speedily disappears. In two or three hours the urine is colored blue. In this difficult class of cases Lemoine is of the opinion that methylene blue is one of our best remedies.—*Therapeutic Gazette.*

THE THERAPEUTIC VALUE OF ARSENAURO.—Dr. A. P. Buchanan, of Fort Wayne, in the *New England Medical Monthly*, commends this agent as a preferable substitute for Fowler's Solution: "I have never secured from Fowler's Solution the fully desired arsenic results which have invariably followed the administration of Arsenauro, and yet, as Dr. Stuckey, over a year ago, pointed out in his scientific

paper, the average dose of Arsenauro contains very much less actual metallic arsenic than does Fowler's Solution. We evidently have an entirely new agent in Arsenauro, something more than the mere combining of arsenic and gold, for by evaporating Arsenauro, you have a resultant crystal which is not the crystal of arsenic, nor is it the crystal of gold, but a crystal such as I have never seen before. I would lay emphasis upon the point that I have observed no evidence of arsenical poisoning from Arsenauro. It does not produce cumulative effects, but is easily and promptly assimilated."

THE NEW TREATMENT OF POSTERIOR SPINAL SCLEROSIS.—Under the caption "The Cure of Organic Ataxia," the *Cleveland Journal of Medicine* so very forcibly expresses the new method that we give it the place of another selection we had made from the original source:

That a man "doesn't know what he can do till he tries" is well illustrated by the results obtained in Europe within the last two years in the treatment of organic ataxia, especially that of *tabes dorsalis* by the practice of systematic movements, concerning which an interesting article by Dr. J. Walsh, dated from Berlin, appears in the February number of the *Therapeutic Gazette*. The treatment consists essentially in a careful re-education of the affected limbs by appropriate exercises, having for their aim the establishment of muscular co-ordination. That such a thing is possible is best proved by the fact that a considerable number of cases are now reported by eminent neurologists in which patients, bedridden in some cases for several years, have been put on their feet and enabled to regain the lost faculty to a serviceable degree. In such cases it is evident that sensation, while seriously obtunded, is not wholly lost, and the brain, through special education, is taught to discriminate and combine afferent impulses of much less than normal intensity. The treatment, which in many cases begins in bed, is at first confined to definite movements of the simplest kind, the object being the cultivation of precision. They are at first guided almost entirely by sight; later, when a certain degree of skill is attained, this guidance is dispensed with. In time the patient, having exercised his legs and feet in sitting posture, is put upright on crutches, and by carefully graduated exercises is taught

step by step to walk, and, as his ability increases, these supports are substituted by a cane. As before stated, this method depends for its succsss upon the exactitude demanded for each separate movement. In addition, it is important to remember that the seances must, especially at first, be very brief, not averaging more than seven minutes twice a day. The intense attention needed in their execution involves a high tension in the cerebral motor-centers, and undue strain results in great fatigue and discouragement. Contraindications for this treatment are but few. Fulminating cases, with severe and constant pains and marked bladder and rectal involvement, are not benefitted. Those respond best in which the pathologic process seems to be in abeyance, while in the preataxic stage the employment of this method has in a number of reported cases prevented in a marked degree the development of incoordination.

IODINE IN TREATMENT—CHOICE BETWEEN THE IODIDE OF POTASSIUM AND THE IODIDE OF SODIUM.—J. C. C. translates for the *Canadian Journal of Medicine and Surgery*, from *La Presse Medicale*, 15 Janvier, 1898, M. Bricquet's indications for iodine *per orem*, and also the preparation of the drug which should be used in each case.

In diseases of the circulatory apparatus iodine is useful in the greater number of cases of angina pectoris, arteriosclerosis, aneurism, acute and chronic aortitis; it may also be useful in remedying circulatory troubles due to badly compensated valvular disease. In diseases of the respiratory organs the iodides are serviceable, particularly in the treatment of true asthma, in chronic cases of bronchitis due to la grippe, some cases of acute bronchitis, chronic bronchitis without expectoration, chronic pneumonia and pulmonary congestion. They may be useful in chronic coryza and ozœna. As to infectious and parasitic diseases, medication by the iodides is of the greatest importance in syphilis and in actinomycosis. In the treatment of poisoning they are used in chronic poisoning by lead and mercury. The iodides have given the best results in the treatment of certain arthritic manifestations; in obesity, pains, sciatica. In surgery they may be used in cases of chronic arthritis, hyperostosis and iritis.

The iodides are useless in diseases of the digestive apparatus, liver and kidneys; in non-specific diseases of the nervous system, in infectious diseases. Contrary to a rather common belief they have no action on the secretion of milk. Should one prefer the iodide of potassium to the iodide of sodium or not? It is better to not be too exclusive in this matter, for each of these preparations has advantages and disadvantages. Speaking generally, one map say that the iodide of potassium should be preferred to the iodide of sodium, except in diseases of the respiratory passages and some cases of rheumatic pains. When the iodide of potassium is not well borne either at the beginning or during the course of treatment, one must fall back on the iodide of sodium, as the therapeutic value of the latter is but slightly inferior to that of the potassium salt.

In ordering a course of iodine it is always prudent to begin with iodide of sodium, which in general is better borne; when the patient is used to the drug the iodide of potassium may be substituted for the other. As after long use, the iodide of potassium has a depressing action, not caused by the iodide of sodium, it is advisable in cases of prolonged treatment to use the iodides alternately.

DEGENERATES.—The study of anthropology has proved the existence of a criminal type, with marked characteristics in anatomy and physiology. How fruitless to allow these parasites upon society to multiply, and then to spend millions in the attempt to alter these characteristics in the individuals of ever-recurring generations! And every year while the government is performing this task of Sisyphus thousands of good members of society are robbed and butchered by the degenerated who ought never to have been generated.—*Medical News.*

PSYCHIATRY.

FUTURE DEVELOPMENT OF MIND.—R. M. Buck, M. D., the distinguished President of the American Medico-Psychological Association, in the course of an address before

the last meeting of British Medical Association, at Toronto, said: Upon the view here set forth, the human mind at present is not formed, but forming; is not completed, but in process of construction. By slow and dubious steps taken in darkness our remote ancestors wearily climbed to simple consciousness. After another immense interval they searched self-consciousness. But that cannot be the end—the cosmic process cannot stop there—cannot, indeed, stop anywhere. Evolution, as far as we can see, has always gone on, is going on to-day, and will always go on. Our old mental faculties are some of them fading out, others advancing toward greater perfection, and alongside of them new ones are springing up, some of which will, without doubt, be of overshadowing importance in the future. So-called telepathy and clairvoyance seem to be specimens of such nascent faculties. I place in the same class the phenomena of what is often named spiritualism. Whether any given faculty, such as one of those now alluded to shall grow, become common and finally universal in the race, or wither and disappear, will depend upon the general laws of natural selection, and upon whether the possession of the nascent faculty is advantageous or not to the individual and to the race.

But of infinitely more importance than telepathy and so-called spiritualism (no matter what explanation we give of these, or what their future is destined to be) is the final fact to be here touched upon. This is that, superimposed upon self-consciousness, as is that faculty upon simple consciousness, a third and higher form of consciousness is at present making its appearance in our race. This higher form of consciousness, when it appears, occurs, as it must, at the full maturity of the individual, at about the age of thirty-five, but almost always between the ages of thirty and forty. There have been occasional cases of it for the last two thousand years, and it is becoming more and more common. In fact, in all respects, as far as observed, it obeys the laws to which every nascent faculty is subject. Many more or less perfect examples of this new faculty exist in the world to-day, and it has been my privilege to

know personally, and to have had the opportunity of studying, several men and women who have possessed it. In the course of a few more millenniums there should be born from the present human race a higher type of man possessing this higher consciousness. This new race, as it may well be called, would occupy, as toward us, a position such as that occupied by us toward the simple conscious *alalus homo*. The advent of this higher, better, and happier race would amply justify the long agony of its birth through the countless ages of our past. And it is the first article of my belief, some of the grounds of which I have endeavored to lay before you, that a race is in course of evolution.

THE TREATMENT OF THE INSANE IN THE CONVENTS OF MOUNT LEBANON.—In a circular issued by Theophilus Waldmeier, the founder and late Superintendent of the Friends' Mission on Mount Lebanon, there is a startling account of the methods of treatment of the insane in the convents in the East, based upon the ancient theory of demoniacal possession. One of these, Kuzheya, is a Maronite Convent on the heights of the northern parts of Mount Lebanon, in the district of Batroon. Its position is romantic, and its building is old and strong. It is one of the oldest of the numerous convents of Batroon and Kasrawan. The general superstition of the people is, that these convents are holy places where God works many miracles; and that each of these monasteries is in possession of a special healing power, and in this way Kuzheya, with its large cave, has the reputation of curing the insane. The cave has a small entrance at the side of a deep valley, but it widens and extends inside to great dimensions, and it is both damp and rugged. The water drops down on every side and forms here and there small pools. The inside is, in winter, extremely cold, and as the water abounds in lime salts, stalactites of different shapes are found, generally long pillars. The monks break the smallest of these into little pieces, bore holes in them, and sell them as relics to visitors, who hang them around their children's necks, believing that they thus avert evil.

Along the rough, natural wall of the cave are blocks of stone placed as seats for lunatics, and behind every seat is a heavy iron chain, bolted and strongly fixed into the solid rock for the detention of the insane. When the patient is received at the convent, he is given over to the monks in charge of the cave. He is pulled through the narrow entrance, forced upon the stone seat, and if he resists, is beaten down. The chain is fastened about his neck, and he is detained for three days and three nights under the expectation that St. Antony will then cast out the demon. St. Antony failing, the treatment is continued, and, when thought necessary by the monks, a ceremony of Exorcism is performed. A priest takes a heavy book in his right hand and beats the insane person repeatedly upon his forehead, while he holds in his left hand the *stola* and the book from which he reads the formula of exorcism, saying, "Get thee away from this person, accursed devil, and enter into the Red Sea, and leave the temple of God. I force thee in the name of the Father, the Son, and the Holy Ghost, to go to the everlasting fire," etc., etc.

Upon the death of the patient, which usually ensues, the monks announce that St. Antony has taken him up to heaven, and a heavy fee is collected from the relatives.

The interest of both the foreigners and natives of Syria has been enlisted in the proposed asylum.

Mr. Waldmeier has reached America, and it is hoped a generous response will be given to his appeals in behalf of the first Hospital for the Insane in the Orient.—*The American Journal of Insanity.*

ALCOHOL AND OLD AGE.—Under the caption of "Alcohol and Brain Work" Dr. M. L. Holbrook, of New York, has an article in the January, 1898, number of the *Bulletin of the American Temperance Association*, which we epitomize because we deem it full of information and of interest to students of the psychology of age, as well as to those for whom it was specially designed by its author:

Shakespeare expresses his opinion of the effect of wine on the character by making Cassio say:

"*Drunk?* and *speak* parrot? . . . and discourse fustian with one's own shadow?" etc.

This is not giving a very good recommendation of alcohol to brain-workers, yet Shakespeare was by no means a temperate man. Indeed, it is believed his life was shortened by drink. But we must not forget that he did some good brain-work—work which will endure as long as the English language is spoken. * * * * *

I shall quote largely from letters which I have received from different persons, most of whom have achieved distinction, giving me an account of their health habits, and in part from my friend, Mr. Reid, who is doing similar work in England. I begun the work of securing these letters long ago, and have to some extent kept it up to the present time.

My first was from Jeremiah Day, a mathematician, and president of Yale College for twenty-four years. He was the author of several mathematical works, wrote, June 18, 1866: "I have never used tobacco, and am a *total abstainer* from alcohol." He lived to be ninety-four years old.

William Cullen Bryant, 1871: "My drink is water. It is rarely that I take a glass of wine. I am a natural temperance man, finding myself rather confused than exhilarated by wine. I never meddle with tobacco, except to quarrel with its use. I abominate all drugs and narcotics, and carefully avoid everything which spurs nature to exertions it would not otherwise make. Even with my food I do not take the usual condiments, such as pepper and the like." Mr. Bryant was then eighty-one years old. He lived to be over eighty-seven.

William Howitt, in speaking for himself, speaks also for his wife, Mary Howitt. He says: "We have always been temperance people. At home we drink for the most part water, and a glass of wine only occasionally." Humorously Mr. Howitt quotes the remarks of an eminent judge. Two very old men were giving testimony in court. They were known as the "oldest inhabitants." The judge asked the first what had been his habits.

"Very regular, my lord, I have always been sober and kept good hours." Hereupon the judge dilated in terms of praise on the benefits of a regular life. When the second man appeared, he said: "I have never gone to bed sober in forty years." "Ha! I see how it is," said the judge, "Englishmen, like English oak, wet or dry, last forever!"

Mr. Howitt lived to be eighty-eight years old.

Father Cleveland was a city missionary in Boston for many years, and a brother of Grover Cleveland's father. He rose at four, and worked hard with brain and body till ten o'clock, p. m., during most of his adult life. He lived

to be within a few weeks of a hundred years old. He wrote: "My drink at the table is 'Adam's ale.' I taste no spirituous liquors. Tobacco I abhor in all its forms, and am persuaded that, like strong drink, it has slain its tens of thousands."

Mark Hopkins, the distinguished educator, wrote: "I have never resorted to alcoholic stimulants to enable me to work longer. For the health of the brain I should prescribe but two things—first, abstinence from artificial stimulants; and second, plenty of sleep."

William Lloyd Garrison wrote: "I have generally used tea and coffee, not strong or copiously, but am equally content with water."

Thomas W. Higginson, one of our most noted literateurs, still living at an advanced age, says: "My good health I attribute to a good constitution, and simple tastes, which disinclined me to stimulants and narcotics, such as tea, coffee, wine, spirits, and tobacco."

O. B. Frothingham, whose life was devoted to brain-work, makes an interesting statement. He says: "I was familiar from boyhood with the sight of wine and its use. It was on all the tables at which I sat, always used sparingly at meal-times only, and no positive ill effects have ever been traceable to its use. Yet, were I to live my life over again, I would accustom myself to abstinence, if not total, almost total, from tea, coffee, and wine; for it seems to me now, on looking back, that something of dullness and languor, something of dreaminess and exhaustion, something of lethargy, something, too, of heat and irritability, may be chargeable to its practice, though not in any degree blameworthy." * * * * * *

Francis W. Newman, brother of Cardinal Newman, now living at the age of over ninety years, and a vigorous thinker all his life, makes a statement which will no doubt challenge attention and cause dissent. Professor Newman says: "I regard abstinence from flesh-meat to be an advantage to an intellectual and sedentary person, scarcely inferior to abstinence from wine and ale."

John Burrows, the products of whose brain have delighted so many of us, writes: "To keep the brain in a good condition I spend half of each day in the open air; avoid tea, coffee, tobacco, and all stimulatory drinks, and adhere mainly to a fruit and vegetable diet. When I can get good buttermilk, I use it, and I want no better drink. There is great virtue in buttermilk." * * *

Edward Everett Hale abstains from alcohol, and adds:

"The business of writing is the most exhausting known to man. You should therefore steadily feed the machine with food. I find it a good habit to have standing on the stove a cup of warm milk, just tinged in color with coffee. A bowl of chowder answers quite as well. Indeed, good clam-chowder is probably a form of nourishment which most easily and quickly comes to the refreshment of the brain of man." Mr. Hale believes in five meals daily, and in ten hours of sleep, and three hours only of brain-work. * *

Lyman Abbott, quoted by Mr. Reid, says: "As a stimulant, alcohol is in my opinion at once a deadly poison and a valuable medicine, to be ranked with belladonna, arsenic, prussic acid, and other toxical agents. Beer and the lighter wines do not facilitate, but impede, brain action."

Charles Darwin, 1882, says: "I drink a glass of wine daily, but believe I should be better without any, though all doctors urge me to drink wine, as I suffer much from giddiness."

[Why wine for giddiness? the author asks. Possibly for *vertigo a stomacho laeso*, in lieu of pepsin, we answer.—Ed.]

W. Boyd Dawkins says: "I cannot drink beer when I am using my brain, and do not take it when I have anything to think about."

W. D. Howells: "When I take wine, I think it weakens my work and my working-force the next morning."

Dr. Henry Maudsley: "I am of the opinion that any supposed necessity for alcohol or tobacco for the hardest and best bodily work is purely fanciful."

Ernest Hæckel, the great biologist of Germany: "I find coffee useful in mental work. Of alcohol I take little, because I find it of no value as a stimulant."

Phillip Gilbert Hamerton: "I never use any stimulants when writing. I believe they are most pernicious—indeed, I have seen terrible results from them."

The Rev. James Martineau, now about ninety-four years of age, one of England's great thinkers, took wine for feeble circulation early in life by advice of physicians. It brought on gout. In spite of medical advice, he gave it up, lost his gout, and has retained the power of mental application to an advanced age, noticing only that his tasks, as age advanced, required a longer time than in fresher days. He adds: "Few things, I believe, do more to lighten the spirits and sweeten the temper of families and of society than the repudiation of artificial indulgences."

John Tyndall: "In my opinion the man is happiest

who is so organized as to be able to dispense with alcohol and tobacco." * * *

Mr. Gladstone drinks one or two glasses of claret at luncheon, the same at dinner, with the addition of a glass of light port. Mr. Gladstone is a man with what we may call a splendid constitution, a well-integrated body and brain, good digestion, a sound heart, most excellent lungs, and the ability to sleep at once after the most exciting brain labor. It seems absurd to say that such a fine organism needs wine to bring it up to its best.

The author thinks he might give as many adverse opinions as to the benefit, or, at least, as to the harmlessness, of a moderate use of alcohol for brain-workers; but he preferred to give the side in favor of abstinence; to show that at least alcohol is not a necessity for all, and believes that evolution is carrying mankind that way. The author's opinion is that the use of alcohol among brain-workers worthy of the name—brain-workers who do the best work—is decreasing; and that with this decrease we are having better thinkers and writers, and that these thinkers and writers are healthier and happier and longer-lived than they would be under the old but dying habit.

The author is of opinion that Mr. Gladstone is self-hypnotized into the opinion that wine was good for him and perhaps he would think the same of St. Paul. But wine for the stomach's sake short of effect upon the brain is medicinally legitimate in such as have a scanty flow of peptogenic fluid, or was before science gave us elegant peptic essences to supplant the need of wine. The editor of this journal had a grandfather who died prematurely at the age of one hundred and five and a grandmother who preceded the grandfather ten years to the grave.

The latter was absolutely abstemious, the former contracted the habit of taking a toddy before breakfast in early life and stuck to the habit till he died, having been intemperate in its indulgence only at the Battle of Brandywine where he was wounded, and during the winter at Valley Forge when luxuries were not always to be had of the commissariat. Our maternal ancestor doubtless had her life abridged from being obliged to inhale grandfather's breath

and perhaps the old gentleman might have been living yet but for his unfortunate alcohol habit for his drink was whiskey and sugar and water.

The case of a past centenarian has lately appeared in the daily press where the old gentleman drank liquor for one hundred of his one hundred and fifteen years of life and is still living.

Misconceptions as to the general use of alcohol to the organism, are passing away with the cultured multitude. But unfortunately the power of organic tolerance of its temperate use by certain organisms and environments is overlooked by overzealous and intemperate temperance advocates. Temperance and abstinence are weakened where philanthropists would wish to see this great cause strengthened by intemperate assaults on the medicinal use of alcohol.

A study of the life habits of the octogenarians, monogenarians and centenarians reveals the fact that, whether they drink alcoholic liquors or abstain, whether they chew or smoke tobacco or refrain, they are systematic and moderate, adapting their indulgence to long established organic tolerance and withal, they are good sleepers, good eaters and take life temperately, "doing all things in moderation," adapting themselves to all they do as their organisms, psychical and physical, are equipoised to their environments.

An extremely old man healthy is illustrative of temperance and a peculiar adaptation of internal to external circumstances, not possessed or displayed by the shorter-lived of his day and generation.

AN INSANITY PLEA.—In 1894 an atrocious murder was committed at Draguignan, in the neighborhood of Marseilles, the victim being a very handsome young woman. The affair created considerable excitement, especially as no clew to the perpetrator of the deed was forthcoming. At this juncture an individual named Isaac Finat presented himself to the police, accusing himself of the crime. As customary in France, Finat led the police to various parts of the country which he pretended to have visited with his victim, several weeks being devoted to this peculiar junketing

trip. When all this preliminary examination was ended he astonished the police by another and different confession, in which he admitted that he was entirely innocent, and that his former self-accusation was due to a form of mania craving for notoriety that was beyond his control, ending by demanding his liberty. He was in turn the victim of an astonishment and a notoriety he did not crave when the police very properly confined him in a lunatic asylum.

In January of this year Finat managed to escape from the asylum at Marseilles, and still possessed by his strange mania again presented himself at the gendarmerie to accuse himself of the old crime committed at Draguignan three years previously. The arrest being communicated to the police of Marseilles, where the escape of Finat from the asylum was already known, they sent a photograph of the lunatic to the Draguignan authorities, who promptly recognized their man and returned him to the asylum. Finat had effected his evasion in company with the lunatic Clarenson, whose insanity of the same order led him to attempt the life of the President of the republic while the latter was driving in the Bois de Boulogne during last summer. Confinement in asylum is one of the best remedies for these mentally deranged persons, and the French law, which permitted of the prompt confinement of Finat, is most commendable, as the same craving for notoriety that led him to accuse himself of a crime he had not committed would in time lead him to commit an actual crime.—Remondino, Selection in *Pacific Medical Journal.*

THE PROSTITUTE'S PREHENSILE FOOT.—In the March number of the *Monatshefte für praktische Dermatologie* there is a brief abstract of a study of the morphology of prostitutes, by Julien, presented at the Geneva congress of criminal anthropology. The author had examined fifty young prostitutes with reference to the presence of the *pes prænensilis* of Italian observers. In this malformation there is an abnormally wide space between the great toe and its neighbor. In two-thirds of the girls examined by the author the average distance between the two toes was more

than an inch, and the deformity was commoner on the left side than on the right.

CLINICAL NEUROLOGY.

THE SIGNIFICANCE OF CASTS AND ALBUMINURIA.—At a recent discussion in the New York Academy of Medicine on albuminuria, Dr. William Henry Porter asserted that hyaline casts were not uncommonly found in the urine of persons who were in the habit of eating too much, and in whom there was a tendency to the overproduction of uric acid. Under such circumstances, the presence of hyaline casts in the urine meant little more than that an isomeric albumin had been excreted through the renal cells and had been precipitated by the uric acid. If, however, there were also epithelial or neucleated casts, there was good reason to believe that the kidneys were positively diseased. The same observer bases his prognosis, in cases of albuminuria, largely on the habits and methods of eating of the individual. Thus, if the person is an animal-feeder, he is inclined to give a favorable prognosis, but if the patient is largely a vegetarian, or indulges freely in fruits, his experience leads him to give a much graver prognosis.—*Philadelphia Medical Journal.*

It has been over twenty years since the editor of this journal showed that albumen and tube casts did not always mean fatal Bright's disease, but that they might result from a great but reparable central nerve strain. One medical gentleman, then a professor of chemistry in a medical college, is yet alive and well to attest the fact after twenty years. The statement was made to him at the time in the face of then current and concurrent adverse medical testimony.

THE TENDON REFLEXES IN SCIATICA.—In the *American Medico-Surgical Bulletin*, J. Babinsky shows that, whereas in healthy individuals the tendon-reflex is normal, in sciatica there is usually a diminution or a loss of such tendon-reflex. This phenomenon was found not only in

severe cases of the disease, but also in much lighter forms as ischialgia. In some cases there is a marked difference in the reflexes on the two sides of the body. The author considers this is a valuable diagnostic sign, especially to differentiate stimulation and hysterical sciatica. It is not clear, however, that incipient tabes is ruled out in the report of the author.

[This does not accord with our experience. We have been in the habit of interrogating the patellar reflex in all cases, and have not noted absent reflex except neuritis or posterior spinal sclerosis were complications. Contrary to Dr. Babinsky, we have found a plus patellar reflex in some cases; only in neuritic sequelae and ataxia is it minus. The fulgurant pains might be mistaken for a phase of sciatica. —ED.]

HÆMAPHILIA EXTRAORDINARY.—Dr. C. H. Powell, of St. Louis, reports in the *North American Journal of Diagnosis and Practice*, the case of a lady, aged 23, the victim of periods of spontaneous hæmorrhage, from almost every part of her body by turns. His first observation, about four years ago, was of hæmorrhage from the stomach, followed by discharge of large quantities of blood per rectum; after which she recovered quickly and resumed her active occupation. Two years later, a menstrual flooding came on, to an alarming extent, and uncontrollable, until at length it exhausted itself as well as the patient, leaving her weak and anaemic in the extreme. The next observation was about eight weeks previous to date, when blood came in profusion from the gums, which were emitting bright arterial fluid at all points. Every remedy failed to check the hæmorrhage, until compression of the facial artery had a partial effect. Next day the bleeding from the gums was lessened, while copious discharges of blood took place from the bowels; same, the day following; and the next night an alarming epistaxis occurred, that required nasal plugging. One day later, the gums stopped bleeding, but a tremendous rush of blood began flowing constantly from the vagina once more, and the blood flowed again from the

nose when the tampon was removed. This bleeding from different sources continued for a week in all, when an attack of faintness and terror came over her, she gasped for breath, and blanched to an extreme degree, and then vomited a great volume of blood, drenching herself and the bed. Surviving this close call, the hæmorrhages ceased in all quarters and did not return.—Abstracted from *Modern Medical Science.*

NEUROLOGY IN GENERAL MEDICINE.—From Neurology, General Medicine has learned much and will learn still more of the effect of mental states, mental impressions, disposition,—of character, if you choose, and I believe that better than others the Neurologist appreciates the paramount importance of heredity, probably because it is more frequently forced upon his attention. If surgeons and gynecologists would oftener consult the heredity and personal equation of the patient, they would less frequently be annoyed by post-operative neuroses, insanities and the lesser nervous troubles that go to make up an incomplete recovery. And this leads me to mention what has already begun and what, God grant, may soon be consummated; the passing of the reflex. When to the nerve specialist comes a case of epilepsy with a note from the family physician saying that the ovaries have been removed without effect and so perhaps the trouble is in the brain, or a case of convulsive tic with the message that the spasm has continued in spite of cauterization of the turbinates or, as occurred to me a few days ago, he sees a born neuropath with typical traumatic neurosis who has undergone five pelvic operations for relief of her nervous symptoms, he groans in spirit and looks longingly forward to the millenium when the man who operates shall have or procure an adequate understanding of that for which he cuts. In the meantime, under the keen scrutiny and rigid requirements of Neurology the so-called reflex as a cause of grave nervous disorder is gradually being pushed into its rightful place; that is among the relatively unimportant curiosities of etiology.—Patrick in *Chicago Medical Recorder.*

LOCOMOTOR ATAXIA AND AORTIC DISEASE.—Ruge and Hutter found (*Berliner klinische Wochenschrift*, August 30, 1897) in 138 cases of locomotor ataxia, twelve—or 8.76 per cent.—with valvular disease. Nine cases—or 6.5 per cent.—had aortic lesion. The valvular affection generally showed after tabetic symptoms were advanced. Five were syphilitic, a sixth probably so, in one case no evidence of this disease. In two cases aortic aneurism was associated with the valvulitis. Rheumatism noted in two cases. The authors believe that the association of the two diseases is the result of syphilis.

INEQUALITY OF THE PUPILS IN CARCINOMA OF THE OESOPHAGUS.—Hitzig, of Zurich, has observed differences in the pupils in six out of thirty-seven cases of carcinoma of the oesophagus. In one case the right pupil was the smaller of the two, and the autopsy showed a large carcinomatous gland on the right side of the oesophagus, encircling the vessels and nerves. In five other cases the left pupil was contracted. This he attributed to deviation of the oesophagus to the left. All apparently due to pressure on the sympathetic (*Deutsche Medicinische Wochenschrift*, 1897, Nos. 36 and 37; *Wiener Klinische Rundschau*, October 10, 1897).—Abstract in *Fort Wayne Medical Journal*.

STOKER'S CRAMPS.—At a meeting of the Medical and Surgical Society of the District of Columbia, November, 1897, Dr. Randolph M. Myers read a paper on "Cramps as Affecting Stokers." During the time he was ship-surgeon he never saw an American stoker; they were usually young men from all the large seaports of Europe. These men work from four to six hours in a high temperature with an interim equally as long. They are poor looking specimens of humanity, being thin and cadaverous, but very muscular. While on shore they indulge in all forms of dissipation and about the second day out they are suddenly seized with violent cramps in the muscles of the legs; which progress up the back and around the chest. They are often unconscious for from five minutes to two hours. The pulse is

weak and thready and the skin is hot. On coming out of an attack they have pain in the abdomen and constipation and are laid up for two or three days. These attacks are more common on the trip out from New York. The temperature has no effect, being the same in summer and winter. Some men seem exempt, but if they have one attack they will invariably have another. Treatment consists mostly of large doses of opium in some form followed by castor oil and Epsom salts.—*Medical News and Miscellany.*

NEW THEORY OF CHEYNE-STOKES RESPIRATION.—In a clinical lecture at the Brompton Hospital, Dr. Maguire stated that not even Felehne's view of the pathology of this condition was satisfactory. He showed that in disease, great depression of the cerebral higher centres was an invariable accompaniment, that in health the phenomenon occasionally occurred in adults during sleep, when the higher cerebral control was relaxed; very frequently during sleep in infants and idiots, in whom the cerebral controlling apparatus was imperfectly developed. He said that there was evidence to show that the respiratory centre in the medulla was controlled and kept in balance by a higher cerebral mechanism, and asserted that yawning and involuntary sighing were instances of irregular action of the respiratory centre when relieved of control by exhaustion or depresssion of the higher centres. He related experiments which proved that removal of the cerebral hemispheres produced Cheyne-Stokes respiration in the frog. It was shown also that lower centres when relieved from control, or when exhausted, were prone to show in their action irregularity of rhythm. Dr. Maguire therefore concluded that Cheyne-Stokes respiration is caused by a stormy unbalanced action of the respiratory centre, due to a depressed vitality of itself or of its higher controlling mechanism.—*Clin. Jour.*—*Cin. Lan. Clin.*

ABSCESS IN THE BRAIN.—A case of dental origin, which ended fatally, is related by Dr. Silax before a meeting of the Medical Society of Berlin (*Zahntechnische Reform, Odontologie*). The patient, a boy of twelve years, com-

plained of excruciating pains, with an exopthalmia of one eye. An opening was made in the frontal sinus, but without any result. An infectious meningitis appeared after nine days. The autopsy showed that the superior part of the brain was coated heavily with pus; the base of the brain was free from pus. The abscess had worked its way for some time, but had not caused much trouble; nevertheless it had brought about the inflammation of the antrum, caused by a decayed molar.—*Western Dental Journal.*

NEURO-PHYSIOLOGY.

THE RELATION OF THE NERVOUS SYSTEM TO DISEASE AND DISORDER IN THE VISCERA.—Alexander Morrison, M. D., F. R. C. P., Edinburgh, (*The Lancet*, January 1, 1898), regarding the probability of a terminal plexus of nerve-fibrils in glandular organs, holds that the balance of evidence is favorable to this view. In involuntary muscle-fibers he found a continuous circumfibrillar plexus, rather than terminal knobs. The discovery of apparently terminal knobs he believes may be due to inadequacy of staining methods. Referring to the terminal nervous mechanism of excretion, particularly in the kidney, he observes that though the complete demonstration of the mechanism is wanting, the nerves are probably there and will some day be demonstrated. He thinks special nerves of metabolism and trophic influence are not finally proved.

THE PITUITARY BODY.—Drs. Vassale and Sacchi (*Rivista Sperimentale di Freniatria*), in 1892, found that destruction of this body in dogs and cats caused death within fourteen days, after anorexia, depression, rigid gait, fibrillary contractions, muscular spasms and lowered temperature. Partial destruction produced similar symptoms. Their recent observations show relief of these symptoms temporarily by an injection of an extract of this organ from the ox. In a case in which the pituitary was only partially destroyed, the characteristic phenomena were observed for

about three weeks, after which the animal gradually recovered and remained healthy for eleven months. It was then killed, and the fact of the incomplete destruction of the gland was confirmed. The results of their experiments appear to show that the pituitary body has certain close functional analogies to the thyroid gland—its partial destruction may be tolerated, and the lowered temperature which follows its complete destruction is restored to normal by injection of the extract of the organ. They are of the opinion that the pituitary body, like the thyroid, elaborates a special secretion indispensable to the organism.

THE SKULLS OF VOLTAIRE AND ROUSSEAU.—Pathologists and scientists generally are much interested in the results of the recent official examination of the contents of the coffins of Voltaire and Rousseau in the vaults of the Pantheon. Both skulls are well preserved, and casts taken of them furnish a striking confirmation of modern theories of the mental differences between the long-headed and broad-headed races. Voltaire was pre-eminently the person whom biologists would expect to have been dolichocephalous, while Rousseau was quite as distinctly brachycephalous. And so their skulls show them to have been, each in an extreme degree. Incidentally, the search revealed the falsity of the accepted story that Rousseau blew his brains out. His skull shows no traces of injury of any kind.—*Medical News and Miscellany.*

NEUROPATHOLOGY.

ABSENCE OF ONE-HALF OF CEREBELLUM.—A man of 46 had suffered for some years from obstinate constipation. When he first came under observation there was, in addition, a tendency to attacks of unconsciousness, a weak heart, with bradycardia and symptoms of neurasthenia, but none of cerebellar or other organic disease of the nervous system. The attacks of unconsciousness became more and more frequent, and during them it

was noticed that there was some turning of the head to the left, and left conjugate deviation. The heart presented very curious phenomena. During the intervals between the attacks the pulse varied between 12 and 16 beats per minute; then it would become less frequent and finally stop entirely. The attack would commence and the pulse would gradually reappear, increasing until, with return of consciousness, it was once more 12 or 16 beats. This condition is believed to be identical with that caused by irritation of the vagus in dogs. At the autopsy the thoracic and abdominal organs were found entirely normal. The myocardium in particular was perfectly healthy. The brain showed the following changes: The right hemisphere of the cerebellum was almost entirely absent; the left was normal. Both cerebral hemispheres were apparently normal. More careful investigation showed a small body, about the size of a hazel-nut, that represented the absent hemisphere. The remainder of the posterior fossa of the skull was filled by a sac containing clear fluid. The right half of the vermiform process of the cerebellum shared in the hypoplasia; the right olive was absent; the right side of the pons, the right corpus geniculatum, and the right crus were all smaller than the corresponding portions on the left. Sections showed an absence of the corpus dentatum. The right vagus and acusticus nuclei were altered. The restiform body was very much diminished in size. The superficial fibres in the pons were almost entirely absent on the right side, proving their connection with the cerebellum. T. H. Neubürger and L. Edinger (*Berliner klinische Wochenschrift*, Jan. 24, '98).—*The Monthly Cyclopædia, etc.*

PSYCHOTHERAPY.

FAITH AS A REMEDY.—Dr. A. H. Barr, in the *New York Medical Record*, thus concludes an interesting article on this subject:

Faith as a remedy for disease is ruled by suggestion and is one form of suggestive therapeutics; that its operation is purely subjective and dependent upon well-

known psychical laws and not upon miraculous or supernatural intervention; that in its application it is much more limited and less available than another form of suggestive therapeutics termed hypno-therapy; and, lastly, that any authentic faith cure can be duplicated by hypnotic methods without any exercise of faith whatever.

EDITORIAL.

[*All Unsigned Editorials are Written by the Editor.*]

A Medical "Defi" to the Bacteriologists and the Toxines.—Dr. Powell's weight is given at 120 pounds, his age sixty. He is described as energetic, wiry and matter-of-fact in manner. He claims to have made his remarkable discovery about eleven years ago and to have made certain demonstrations, though he has not been, of late years at least, in active practice. He does not use Antitoxine serum of any kind but claims to have discovered the means by which the resistive power of the organism against disease, is built up and conserved or broken down. His personal immunity appears to have been proven by recent tests by physicians on the Pacific coast from whence we await further confirmations. His account of himself and his discovery read to us like the confident announcement of a deluded enthusiast. Here is what he states, and other accounts confirm, what was done with him without his being harmed:

"I was inoculated with consumption and diphtheria germs by vaccination, and with a hypodermic syringe. I inhaled the dried sputum of a consumptive in the final stages and was also inoculated with the stuff. An investigation showed that twenty-five baccilli came within the scope of the glass. I also had typhoid fever germs put into my intestines in several different ways. I felt no evil effects whatever from any of these demonstrations. My temperature was found to be normal, and not the slightest indication of any disease showed itself. I have practically kept myself immune for years past."

If he continues thus he is certainly toughened to the touch of baccilian toxicity.

Here is the luminous way in which this modern medical Galileo scans the physiologic and therapeutic heavens and announces his "great find":

"My primary discovery was the science of muscular contraction. By this I mean nutrition, the process by which we obtain strength from what we eat. Loss of power has

been shown to be the cause of diseases, and if we are able to learn how we can obtain power, we can also learn how we come to lose it. This I have discovered. After making this discovery regarding muscular contraction, I soon gained the other facts, which, while not based on this science, are closely allied with it. When I had completed the discovery and become satisfied of my ability to immune myself, I began experimenting with germs privately, and later gave demonstrations before scientific people to prove my claims. My discovery is at variance with many of the findings of the past, yet I defy the scientific world to overthrow it. It answers every question of the body, whether in disease or health. One point I desire to emphasize, and that is that this is not a serum treatment. I decline to explain the exact nature of this discovery by which I immune myself."

Dr. P. has "a book in preparation" and a lecture tour in contemplation.

The Temper of the Insane in hospitals is thus well set forth by Dr. Orpheus Everts' report of the Cincinnati Sanitarium for 1897:

The insane, while suffering in the acute and more hopefully recoverable conditions of the simple forms of mental disorder, are almost wholly indifferent to environments. The maniacal, for example, before reaching the modified conditions of chronicity, have no other appreciation of surroundings than as obstacles to the freedom of their mad actions, to be destroyed rather than enjoyed; and if permitted to do so, are more likely to be found rolling, garmentless, upon a soiled floor, as a matter of choice, than reposing in a most comfortable bed. The melancholiac, still retaining a large share of mental capability, yet overwhelmed by a voluminous sense of hopeless unhappiness—an insanity of feeling rather than of thinking—who can see nothing beautiful or interesting in nature or art; can think of nothing pleasurable or promising enjoyment; to whom "all the uses of this world seem," as they did to Hamlet, "weary, stale, flat and unprofitable;" and the prospect of another, if possible, still more doleful—if they take notice of surroundings at all are more likely to complain of their being too good—better than they deserve, or than their friends can pay for, than of any discomfort otherwise appreciable. Subjects of acute dementia, some of whom may recover, generally lack sufficient sensitiveness of the organs of consciousness to know or care what their environments may be. Persons manifesting many other varieties of insanity by symptoms too variable to admit of definite

classification requiring hospital restraint—whether curable or otherwise—many of them are capable of observation and criticism, adverse, as a rule, of their surroundings. They are, indeed, by reason of constitutional peculiarities, exaggerated by ill-health, "out of harmony with their environments," no matter what they may be. They are not contented at home. They antagonize every proposition made for their comfort. They habitually misconstrue every act or speech of persons in whose care they may be placed as hostile, no matter how kindly intended. As but a small number of such persons recover, it is from their accounts of hospital life, always exaggerated, often entirely false, that hospital reputation suffers most. Patients who recover, of whatever class, always speak well, often gratefully, of the conditions and persons to whom they attribute their restoration to mental health.

The Wallace Food Company.—We are gratified to learn of the prosperity of this legitimate adjunct company to the medical profession. Nutrition in assimilable form is an essential element of success in medical practice and the company that provides for the profession good sanitary readily assimilable food for infants, invalids and aged people at moderate prices, and in convenient form for administration and transportation, as this company does, is a benefactor of the profession, deserving of the highest pecuniary success compatible with honesty and fair dealing. And it is such success that the Wallace Food Company is achieving in medical circles.

A Department of State Medicine for Germany.—Apropos of our own paiseworthy home move for a department of State Sanitation or State Medicine, it is well to note what is being done abroad in this direction. The sanitary interests of a country are second to none other, for with highest attainable maximum of health the capacity of a people to promote personal and state welfare is proportionately enhanced. That great Empire, noted for its medical giants and medical enlightenment, is moving in this important direction like ourselves. A late telegram from Berlin informs us that a portion of the press is advocating the creation of a separate State Department of Medicine under a responsible Minister on the ground that public hygiene is insufficiently protected by the Medical Bureau which is merely a subordinate section of the Minister of Public Instruction. The late cholera epidemic at Hamburg is instanced as a justification of the demand. The medical

men of Germany and the medical men of America should accept no subordinate place for their medical staffs in the nation's counsels. Sanitary matters are too important to a nation's welfare for that. In the home, the counting house, the mart of trade, or the march on the field or on the sea, the impress of a good or bad sanitation must help or cripple a people. The disaster of disease even in battle, often comes to a nation in crises of great moment to blast it in its hour of might. Only a short-sighted people will ignore or undervalue its medical corps in army or navy, or in its homes and schools and places of business or pleasure.

British Medical Association, Sixty-sixth Annual Meeting, Edinburgh, July 26, 27, 28 and 29. President of Section on Psychology, T. S. Clouston, M. D.; Vice-Presidents, W. W. Ireland, M. D., H. F. Hayes Newington, M. R. C. S., Joseph Wiglesworth, M. D.; Honorary Secretaries, John Macpherson, M. D.; George M. Robertson, M. B.

The secretaries, wishing to secure for the approaching meeting in Edinburgh as wide and representative a class of papers and discussions on subjects of interest as possible, desire your presence, but should you not see your way to be present at the meetings, they hope that you will aid the work of the Section by suggesting subjects for discussion which you consider of special interest and importance.

The North American Journal of Diagnosis and Practice, and a Fee.—It gratifies us to see the *Medical Sentinel* thus express its appreciation and approbation of a good St. Louis medical journal and an honest bill for medical sciences: "St. Louis is nothing if not medical. Medical men, none better; medical colleges, galore; medical journals, some good; medical purveyors, with enterprise unlimited. Now comes a new addition to the medical press of that city, the journal with the long name above given, which starts in good form. Dr. C. H. Powell, Dr. J. C. Ehrhardt and Dr. A. R. Kieffer are editors, while Ben Lewis is business manager. The journal says that when subscriptions expire, a red wrapper will be employed—may none be required. N. A. J. of D. and P. says that Dr. Charles H. Hughes, of St. Louis, has just presented a bill of $6,000 against the estate of the late millionaire, J. B. McCullough, for services covering about three years. The St. Louis papers have thought the bill too high. We join the N. A. J. of D. and P. in saying that the bill is rather too low than too high."

Not Born to Die.—*The New York Medical Record*, noting that "asylum physicians run risks in the daily routine duties that are little known," and referring to the perilous career of Dr. Campbell, Medical Superintendent of the Cumberland and Westmoreland Asylum, writes (*Lancet*, December 18, 1897) as follows: "I have been attacked by a patient with a scythe, who tried to cut my legs through; by a patient with a knife; by a man who waited at the back of a door with a stone in his hand and who smashed my front teeth; and I have had my spectacles smashed on my face—but I still live after thirty-two years spent in an asylum." Campbell is evidently "one of the few immortal names that were not born to die." We saw him at Moscow last August, hale, hearty and hopeful of a long and further useful life. Five years of experience as medical head of a lunatic asylum and two escapes from murderous assault, enable us to appreciate Dr. Campbell's perilous position. But vigilance in an insane hospital is the price of safety. Knives, scissors and stones should never be accessable to a certain class of lunatics.

Good Taste in Medical Journalism.—A number of our contemporaries have shown excellent taste with their scissors in clipping from our January number our announcement of the field of the ALIENIST AND NEUROLOGIST. These journals are all excellent, meritorious and high in professional esteem, which makes their action in the premises a delicate compliment, as well as a graceful act of friendship, for they have our cordial thanks.

Medical Influence in Public Affairs.—The *Deut. Med. Woch.'s* Paris letter on the subject of "Physicians in Public Life," Dec. 23, 1897, is thus translated in *The Journal of the American Medical Association:* "The present French Senate numbers thirty-nine physicians and three veterinarians among its 300 members, while in the Lower House there are fifty-eight physicians, two veterinarians and four druggists to the 581 deputies, a proportion of one to nine. In Germany the proportion is very much less—one to sixty-six (1893). In the last ten years France has had physicians in the cabinet; ministers of the navy, interior and of agriculture. Among the better known members of the legislature are Professors Cornil and Lannelongue, and the popular surgeon Labbé. Trelat, Trousseau and Malgaigne were also senators in their day. The French legislator is usually first the mayor of his town or occupies some other public office (in Paris, member

of the city council), thus showing the remarkable interest taken by the medical men of France in public affairs and politics and the esteem in which they are held."

To this is added the statement: "Italy has twenty-three physicians in the legislature, including six professors."

This is in marked contrast with the part played by American medical men in public affairs. American medical men of professional eminence have hitherto affected to despise public life, designating politics as degrading to the high calling of medicine, while inferior men have filled exalted official position without official influence or check from us, to the great detriment of our professional interests, through deserved but neglected or antagonized legislation. By keeping out of public affairs the medical profession has got whipped in the fight. This great country with its great health interests has no Bureau of Sanitation and no physician in the cabinet, because it has not hitherto placed itself in position to demand and secure its rights in public ministration and service. Doctors who, being financially able and have the opportuniy to do so, should go into public service, especially legislative service and be applauded for so doing.

The following Papers will appear in "Pediatrics" for 1898:—The Modern Treatment of Anemia; The Administration of Anesthetics; Appendicitis, Surgical Treatment; Appendicitis, Medical Treatment; "Tic" and its Treatment; Chronic Constipation in Children; Sudden Death in Infants; A Series of Practical Papers on the Treatment of Deformities in Children; Diet for Children in Health and Disease; Ear Ache; Empyema; Epilepsy; Education of Feeble-Minded Children; The Management of Children with Heart Disease; Hydrotherapy for Sick Children; The Paris Incubators; Incontinence of Urine; The Management of Children with Kidney Disease; The Care of the New Born Infant; The Value of Alcohol in Pediatric Practice; The Infiltration Method of Local Anesthesia; The Treatment of Acute Bronchitis; The Treatment of Burns; The Technique of Circumcision; Convulsions in Children; Chronic Cough; The Technique of Intubation of the Larynx; Antitoxin in the Treatment of Laryngeal Diphtheria; Antitoxin in the Treatment of Naso-pharyngeal Diphtheria; The Treatment of Eczema; The Home Modification of Milk for Infant Feeding; Growing Pains; The Headaches of Growing Children; Hernia, The Radical Cure; Hernia, Mechanical Treatment; Influenza; The Diagnosis and Treatment of Infantile Malaria; Medicine for Infants; Marasmus, A Study

in the Management of the Wasting Diseases of Infants; Night Terrors and Insomnia; The Proper Care of the Mouth During Infancy; The Management of Pneumonia Patients; Rickets; Scurvy, Diagnosis and Treatment; The Diagnostic Value of Tuberculin; The Diagnosis of Typhoid Fever; Serous Meningitis; Intestinal Intoxication in Infants; Some Practical Thoughts on Nursing Sick Children; A Plea for the More General Use of the Ophthalmoscope for Diagnosis in the Diseases of Children; How Shall the Rising Generation be Shod? Rheumatism in Children; Scarlet Fever and its Complications; Congenital Syphilis; Tuberculosis; Vomiting and Diarrhœa; The Treatment of Intestinal Worms; and many others. Address Pediatrics, 254 West Fifty-fourth Street, New York.

Education of Epileptics.—It is gratifying to note the *Literary Digest* directing too long deferred attention to this long neglected subject: "The public is beginning to wake up to the fact, with which medical men have long been acquainted, that epilepsy is a very common disease, and that it is one in which care and special training are of great benefit. Hence the recent experiments with the "colonies" of epileptics, which are proving so successful. In *The Medical Record* (January 1) Dr. W. P. Spratling, the superintendent of the Craig Colony at Sonyea, N. Y., perhaps the best known of these "industrial farms" in this country, writes of the theory on which they are conducted. Says Dr. Spratling:

"When it is realized that one person in every five hundred of the population is an epileptic, and when we further realize the more important fact that seventy-five per cent. of all cases of epilepsy begin under twenty years of age, and that not more than six or eight persons in every hundred who have the disease get well, and that unless especial pains be taken to correct the tendencies of the disease in early life, progressive mental and physical failure is sure to follow—we can appreciate the great value of the proper education for this class, especially when it carries with it the potent influences that serve so materially to stay the ravages of the disease. Not only, therefore, do we educate, but through the same agencies we ameliorate and cure. For no other class of dependents is it possible to do these two things at the same time. In educating and training the epileptic it is well to bear constantly in mind the infrequency of the cure of the disease; and keeping that in mind, and understanding that he will always as an epileptic be an object of social and business distrust, and, if

he remains uneducated and unimproved, an economic burden so far as the cost of his care is concerned, we can readily see that the kind of education he needs is one that will put, not complex algebraic formulæ and a mass of ill-defined and useless knowledge of the dead languages and ancient history into his brain, that can not be called into useful account through the ends of his fingers, but an education that puts an instrument into his hands that, wielded by him, will give him a practical result in the form of his daily bread."

This theory of the special value of industrial training has been found, in the experience of successful foreign colonies, such as that of Bielefeld, Germany, to be the true one. In describing the difficulties under which the newly established Craig Colony has labored, Dr. Spratling reminds us that the epileptics that were sent to it had for the most part been inmates of other institutions and were unaccustomed to work, if not too old for training. Of 230 admitted since the opening of the colony only 5 per cent. can yet perform any useful labor unaided, owing to the long standing of the disease in their cases and to their previous lack of training.

Epileptics need isolation and separate care and training from the rest of the world, and, where practicable, oöphorectomy and emasculation. If our enthusiastic surgical innovators, the earlier gynecologists and their still persistent followers after normal oöphorectomy, had only "got in most of their work" on the epileptics rather than the neurasthenics, hysterics, neuralgics, etc., a grateful world would now be giving them thanks in lieu of censure for some of their reckless genital surgery.

About the time the editor of this journal came into the profession the destructive gyno-surgic star was in the ascendent. A Texas student having heard normal ovariotomy called by the conservative professor of surgery a *dernier ressort* and immediately after hearing the professor of gynecology commending it, the slitting of the cervix and cliterodectomy commended for numberless female ills, he called these proceeding the durn near resorts of gynecology and thought no doctor's reputation could be made without often resorting to them and he afterwards made his record in the graveyard and asylums.

Bicycle Fatigue Delirium.—No Roman or Greek gladiatorial exhibition was ever more cruel to look upon than the late Madison Square garden bicycle race. It would he interesting to follow the future life of the young men

engaged in this modern substitute exhibit for the gladitorial arena of ancient Greece and Rome—this ptomaine fatigue and acute cerebrasthenic, neurasthenic muscular exhaustion performance. Our valued contemporary, *The Medical Age*, speaking on this subject under the caption of the Modern Arena, truly says: "If we are to have an arena the old one is not less merciful for being a little more cruel. If an experienced and observant alienist had examined carefully the mental status of the contestants towards the close, he would have found many delusions had developed besides those recorded. As it is, the record gives hallucinations and delusions of persecution, poisoning, ladies in peril from ruffians, unjust obstructions, starvation, etc., besides the physical suffering and semi-paralyzed condition of many of the riders, some not being able to mount or dismount long before the race ended, without aid."

This race was four days, too long in number of days and at least two hours too long daily in point of time, for intervening rest and recuperation. The organism is not benefitted but harmed by exertion and the point of excessive ptomaine poison beyond the power of daily elimination, mental and physical fatigue beyond each day's organic power of elimination and recuperation, and mental and nerve strain beyond each day's power of repair, as shown in insomnia, hallucinations and delusion, which are nature's penalties and protests against such inhuman violence to the delicate machinery of man's brain and brawn.

A Symposium on Insanity.—Introductory to an interesting address on insanity before the Topeka Academy of Medicine and Surgery, May, 1896, Dr. B. D. Eastman, the accomplished medical head of the Topeka Insane Asylum, referring to how things used to be when this subject was introduced, facetiously represented the society like this:

The reader concludes his paper; the president announces it open for discussion; no one volunteers. The president calls upon Dr. A., an old gray-headed practitioner, who heavily rises and says, "Mr. President and Fellows of the Society, there has been so much said, and on the whole so well said, that I will not occupy the time." The president anxiously turns to Dr. B. a young but promising member, who quickly rises with, Mr. President and Fellows, "I agree, in general with my friend on the other side of the room."

The speaker went on to state further, however, that, "the medical schools are giving clinical instructions on insanity, the general practitioner comprehends desirable treat-

ment and our society has a goodly number of members competent to discuss papers on this subject," and delivered a real interesting and instructive and appreciated essay.

The February number of the *Pennsylvania Medical Journal* contains an advanced symposium on the subject, in which insanity is treated before a general medical society, the Allegheny County Medical Society, in three important aspects of the recognition, prognosis and treatment of the subject, by gentlemen competent to handle the phases of mental aberration in general. This is progress, for insanity is a disease of primary, secondary or concomitant involvement of the brain and as such its consideration is always important to the general practitioner.

Alcoholism, Physiologic and Pathologic.—Our old and much esteemed friend, Crothers, of the *Journal of Inebriety*, who is doing a good work for humanity, both by the hot scientific shot he pours into the ranks of the advocates of alcohol as an habitual beverage, as well as the scare-crow and scientifically unfounded declarations which often find place in the pages of his estimable journal, says, in an editorial in the January number, that "nothing has ever appeared in the journal which could justly be called final truths." Yet he pitches into us for characterizing the statement that "acute alcoholic intoxication is always followed by general palsy," as a crooked idea. "There can be no normal stages of alcoholic impression," which he calls inebriety. "The normal coordination is always deranged, the higher brain activities can never act in full harmony" under alcohol in minutest dose, to the mind of Dr. Crothers.

To such a mind, of course, psychologic and pathologic, normal and toxic, symptomatology mean the same thing, and "a normal response" of perfectly healthy neural organism, "a normal response" of the normal nervous system to the action of alcohol and the abnormal response to the same agent of an inherently abnormal neural mechanism, "can not be translated into the language of modern research." This makes a tilt between the ALIENIST AND NEUROLOGIST and the *Journal of Inebriety* an impossibility. For to its editor "the action of alcohol is a depressant and paralyzant" and "there can be no true exhilaration following its use." "The supposed exhilaration is irritation and excitement." Because "alcohol in one ounce doses visibly depresses and lowers sense acuteness and activity," therefore the minutest quantity in the blood, impressing the higher nerve centers, is depressant and paralyzing. But drachm doses are even toxic to some nervous systems, even to our less

enlightened power of scientific discernment of alcoholic toxicity, and to some ages.

There is the same difference between salutary and toxic alcohol as there is between the therapeutic and the toxic in drug impression, and a similar comparison may even be made of food in moderation and excess, though the lines of moderation and excess in alcohol are so close together that few who venture to try alcohol as a food, keep within physiological impression, so few that all observation teaches the peril, to most organizations of attempted moderation in drink, and puts the seal of scientific condemnation upon alcoholic drinks as a habitual beverage.

The doctor unwittingly misquotes us when he makes us say "some of the world's best work in every walk of life, even in poetry and in the pulpit, has been executed under acute alcoholism." No good work was ever done under acute alcoholism, as we view it, namely, a condition in which the nervous system is under alcoholic control. But some of the world's best work in field and forum has, nevertheless, been done, as we have stated, under alcohol, but not under inebriety unless, in the latter case, the work has been conceived in a state of sobriety and only automatically carried out under ebriation.

The Journal of Inebriety is rather intemperate in its declarations and its editor a little off sometimes in his psychiatry from our standpoint of mental analysis of the inebriate, but both are doing a good work for humanity. It is necessary to only knock some men down with the club of exact science, but some men have to be scared to death before they will enter the kingdom of moral reformation. Dr. Crothers and his colleagues are doing both, but crooked ideas sometimes cling to the end of their bat. Alcohol is not everlastingly, only and always, in minutest or largest quantities, oft or seldom repeated, evil and only evil, though it is the very devil's chain of evil, in the main, and has no just claims for fair treatment, for blood and woe have been ever on its trail.

But let us give even the Devil his due and draw the line sharply between the "devil" in the alcohol drinker and the disease which the drinker can not help and "nothing extenuate nor ought set down in malice" or ignorance, which in this relation is as bad.

Heredity.—Clark Bell, Esq,, L.L. D., of New York, President Medico-Legal Congress, recently read before the Psychological Section of the Medico-Legal Society the following interesting essay which shows how the teachings of medical psychology are permeating the bar and finding rec-

ognitions in new channels of observation and thought:

"Ribot (th), in his work on Heredity, which is not only an authority but a classic, defines heredity as 'that biological law by which all beings endowed with life tend to repeat themselves in their descendants; it is for the species what personal identity is for the individual.'

"This is universally conceded on man's physiological side; but questions are raised as to the psychology of heredity, and we are compelled to ask, Are mental characteristics, traits, virtues, vices, passions, and the emotional side of man transmissable?

"Certain characteristics have been generally conceded, as thus existing and inheritable and almost unquestionable. Among these I will enumerate fecundity, longevity and such personal characteristics as may properly be called idosyncracies in the individual.

"Schopenhauer says of heredity—'The most ordinary experience teaches that in generation, the combined seed of the parents not only propagates the peculiarity of the species, but also those of the individual, as far as bodily (objectives external) qualities are concerned, and this always has been recognized.'

'*Naturæ sequitur semina quisque suæ.*'

"Now, whether this also holds good of mental (subjectives internal) qualities, so that these also are transmitted by the parents to the children is a question which has already often been raised, and almost always answered in the affirmative.

HABITS OF THE INDIVIDUAL.

"Darwin notes a case of a peculiar habit of hand motions in the father transmitted to his daughter, and peculiarities in handwriting clearly follow this law. (Darwin, "Variation in Animals and Plants," vol. ii., p. 6, 1868 edition.) Can we say that the characteristics of the senses are hereditary? Touch, vision, hearing, taste; are they under this law? Congenital blindness is certainly; and the deaf mute, if congenital, has, when mated with another deaf mute, reasonable right to expect this defect in the offspring. Colour blindness is undoubtedly hereditary.

"Smell in animals and man is beyond doubt transmissible, and special and peculiar tastes in the parent are, as most men believe, traceable in the offspring.

"Memory and aphasia may be purely physiological, and if so, subject to the law of heredity. Characteristics of memory often relate to an individual, as one can always

remember a face or the color of the eye, but with difficulty a name; another the reverse. So far as memory is physiological, it is doubtless under the law of heredity. The classification of the poets made by Ribot, and their origin, shows how large a share of the imagination comes under the law of heredity. The same is true of musical taste, and painting, of high artistic excellence, and attainment in literature, and in the sciences. Ribot's classification of authors and their genealogy leaves us little room to doubt the transmissible influence of the parent upon the offspring; now what shall we say of the passions, the emotions, the vices of man?

"All breeders of animals, as the horse and the dog, believe that courage and game qualities are the result of intelligent breeding, and are hereditary qualities.

"The thoroughbred horse is a result of this belief in its production, as is the trotting horse; and courage, tenacity, and what horsemen call "game" qualities, determine not only the truth of heredity, but the excellence of the product, in securing the result desired and sought for.

"Experienced breeders study as carefully the lineage and physical characteristics of the dam, as do they the sire, in breeding the horse, and in my own experience and observation, which has been quite large, I have been led to regard the mother as rather the more important factor, as I believe it to be in man, in estimating character and qualities, especially in the higher types of each. Likes and dislikes which become traits in the individual are beyond question reproduced in the offspring.

"Ribot says, 'That the passion known as dipsomania or alcoholism is so frequently transmitted that all are agreed in considering it hereditary as the rule; not, however, that the passion for drink is always transmitted in that identical form, for, it often degenerates into mania, idiocy, hallucination, &c.'

"Conversely, insanity in the parents may become alcoholism in the descendants. Magnus Huss says, 'A frequent effect of alcoholism is partial or total atrophy of the brain; the organ is reduced in volume, so that it no longer fills the bony case. The consequence is a mental degeneration, which in the progeny results in lunatics and idiots.'

"The cases cited by Morel of insanity in the offspring resulting from the fixed disease of inebriety in the parent, combined with our own personal experience and observation of those closely associated, or known intimately to us, in our own lives and experience, have led us all to look at this

relation of inebriety by heredity to insanity, so as not to leave it an open question for discussion. (Morel, "Traités des Degeneracies, p. 103.)

"Abnormalities of the sexual passions are beyond question transmitted to the offspring. Other vices and propensities are undoubtedly in the same category as are avarice, theft, and criminal instincts.

"Dr. Despines's 'Genealogy of the Christian Family' (Despines, vol. ii., p. 40), and Mr. Gerard's 'Tracing of Our American Mother of Criminals,' leave little room for doubt that criminal instincts and tendencies are hereditary. Insanity, which is a physical disease, must be regarded as a pathological condition, and it is in accordance with the laws of heredity transmissible. Inebriety, as a disease, is under the same law when it becomes a distinct state or condition in a pathological sense. Hence insanity in all its forms, mania, dementia, melancholia, with suicidal tendencies, being the result of an organic disease affecting the organic structures, is as liable to be traceable in the offspring, as an organic defect would be in an animal.

"I have bred a great many horses, perhaps more than one hundred. If the mother has a spavin she would not be used. Her colts would not necessarily have spavins, but the spavin is the result of a physical weakness in that part of the leg, and her get would have a tendency to that weakness, which, sooner or later, especially under severe usage or strain, would result in a spavin on the colt; perhaps not till late in his life, but rather certain to develop sooner or later.

"Brierre du Boismont, Voltaire, Moreau of Tours, Lucas, Esquirol, all recognized this tendency. Esquirol saw, at the Salpetriere, in Paris, an idiot woman, the mother of two daughters and a son, all idiots. Haller quotes two noble families where idiocy appeared in the fourth or fifth generation after its first appearance.

"Ribot is of the opinion that the cases of hereditary insanity represent from one-half to one-third of the whole number (Ribot on 'Heredity,' p. 131), and he quotes Moreau of Tours as placing nine-tenths, Maudsley, from one-fourth to less than one-half. In his fifty cases cited, sixteen were hereditary, or about one-third. Shakespeare says:

'Cowards father cowards, and base things sire base.'—*Cymbeline IV, 2.*

"Who shall say how much the warlike Philip's fondness for power and love of conquest, bequeathed to his great illustrious son, Alexander the Great, came under this law.

Nero was a lineal descendant of the Claudian family, from which came Tiberius and Caligula, and the terrible atrocities which marked his career and reign commenced in his grandfather, were more strongly developed in his own father, and became fully developed in him. His mother was Agrippina, a Bacchante.

"If we look at Roman history, we learn that the father of the great General Hannibal was Hamilcar, a worthy sire of so great a son. The son of Miltiades was Cimon, and the illustrious and noble Scipios show how the grand character of the father passed to the son. Illustrious examples of the heredity of vice and criminal instincts may be found on every page of history.

"Cæsar Borgia, hideous and execrable, was the exact image and counterpart of his father, Pope Alexander VI. The Queen called Bloody Mary was the daughter of the bloodthirsty tyrant Henry VIII of England, by his first marriage."

The Medico-Legal Journal is taking hold of many problems of joint interest to the professions of medicine and law, and Ribot's work which has been before noticed in these pages is alike interesting to both lawyers and physicians.

A Therapeutic Warning.—Do not give soluble potash salts and chloroform at the same time. Desgrès and Nicloux state in the *Presse Med.*, December 11th, that chloroform in contact with potassium, or any alkali, disengages oxide of carbon. Experimental investigation showed that the alkaline blood affected inhaled chloroform in the same way, one subject having 1 to 1,000 of oxide of carbon to 5 kilogrammes of blood, total weight 65 kilogrammes. While this proportion is not very large, still it may explain some of the accidents due to chloroform.

It is also a question as to the advisability of combining Chloral Hydrate and Potassic Bromide, etc., in the same prescription, though they are often done with not fatal results following. Chloroform is said to be formed from chloral in the blood. We believe this was Liebrecht's original conception of the manner in which chloral produced its lethal effect. At all events after the potash salts, it is well to wait a while before giving chloroform.

Rush College and the University.—An arrangement of affiliation has been entered into between Rush Medical College, Chicago, and the University. The aim of the new affiliation will be to graduate college men alone in

medicine, a most praiseworthy object in the main. This is the trend of all the best medical schools to-day. The Barnes Medical College, of St. Louis, which has a four year term for men who pass the ordinary examination of High School graduate qualification, makes a concession to college men whose course has included a scientific one, embracing chemistry, physics, physiology and anatomy, of one year, such advanced standing entitling to graduation after three years additional medical study.

Public Money and the Drug Business.—Dr. B. T. Whitmore of Chicago, treats of this subject in an article too long for us to publish entire. He quotes from the *New York Medical Journal*, from several of the New York newspapers, and from the December number of the *Bulletin of Pharmacy*. The *Bulletin's* article, signed "J. H.," is as follows:

"The *Bulletin* is hunting for a curiosity. It is trying to find one solitary ground, with a faint fringe of cogency or validity, on which may be justified the action of the City of New York in entering upon the manufacture of medicine. Can anybody give us a single adequate reason for the production of antitoxin by the New York board of health?

"The infectious character of diphtheria? Its great mortality? The necessity of promptly suppressing it in the interest of the public health? Diphtheria is indeed a terrible malady, but so is malaria, and quinine bears to malaria much the same relation that antitoxin bears to diphtheria. Yet what state or municipality has found it necessary to manufacture quinine? Supplies are very properly purchased from private producers, on the grounds of economy, quality, convenience, and the impropriety of a governmental invasion into the domain of individual enterprise. The bitter experience of ages has taught the world that when government undertakes to serve the public with commodities, the fate of the public in almost every instance 'is merely to have the dearest and the worst of everything.'

"The argument of quality or accessibility no one will have the temerity to bring forward, for *excellent serum in practically unlimited quantity* is offered on the market by both foreign and American producers of repute. On the score of economy the less said the better. All we ask is a challenge, as provocation to show conclusively that the antitoxin furnished the people of New York City could be purchased at from one-half to one-third its cost to the municipality.

"What, then, is the motive which provokes municipal competition with private enterprise? We can only respond

with a shrug of the editorial shoulders. We give it up. Ask the Sphinx or our friend OEdipus.

"See the injustice of the whole business. The New York board of health receives annually a specific municipal subsidy of thirty thousand dollars for the production of antitoxin. It produces enough serum to supply the needs of all the indigent sick. So far so good. But having equipped itself on a scale which yields a considerable surplus it sells this surplus among the physicians and druggists of New York State, and of the United States. The surplus costs it nothing since its appropriation covers the expense, and with its subsidized product it thus wages lively competition on private and legitimate producers. It is outrageously unfair. The City of New York has no better right to enter into the serum business than it would have to manufacture drugs and chemicals, or pure foods, or sanitary underwear, or unadulterated beer, or to start a farm or an 'aseptic barber shop.' All these things come within the sphere of private enterprise, and private enterprise must be notoriously inadequate before any branch of the government is justified in assuming functions grotesquely foreign to its real purpose, which is simply the defense of property and the promotion of justice.

"If the State desires to furnish the poor without charge sterilized milk or pure medicine, we have not a word of protest. But to do this it is not necessary to embark in business, nor to enter into unfair competition with private manufacturers by selling at a low price a subsidized product.

"In this argument we have no concern with the philosophy and scope of governmental powers, with the merits of State socialism, of with Herbert Spencer's famous arguments against State interference with private initiative under *any* circumstances. We simply hold—and we know that the common sense of the great majority of our fellow-Americans will assent to the moderate proposition—that when brisk competition, fair prices, and good qualities prevail in any branch of industry, there is an overwhelming presumption against official intervention, on the double score of justice and policy. In the present case the injustice seems peculiarly grievous, since it discourages a high form of industry which employs a considerable corps of accomplished scientific men and educated assistants."

Dr. Whitmore goes on to say:

"The City of New York is engaged in the drug business at the expense—and it is a heavy expense too—of the people, and in defiance of the principle and fact that it is

no part of the business of government to engage in or be identified in any way with artistic, commercial, or industrial pursuits."

He then gives extracts from a paper read at the British Medical Association meeting in Montreal by Dr. Biggs, of the board of health, of similar tenor to his able presentation of the subject which is well worth reading, but for which we regret we have not space.

Success in Medical Journalism.—"Medical journalism offers a career that repays and requires undivided devotion; one that may fulfill high ambitions and subserve large usefulness. It is a mission; for no man can reach the ideal of medical journalism who only writes to live; he must live to write.

"The ideal journalist needs to cultivate many qualities which it is not always easy to combine. He should have rapidity of initiative and promptness of decision, for slow deliberation is the grave of opportunity. He needs quick and catholic sympathy, for this is a great source of power; but a corresponding capacity for just indignation is its necessary correlative and qualification.

"Magnanimity is a necessary editorial quality, for often the best way to remedy injuries is to forget them. An editor must know what to pass over as well as what to note, and must be able and willing, often graciously and tenderly, to ignore what others know. He must be accessible to all; and while appreciating the personal acquaintance and justifying the confidence of the leaders among whom he lives and ranks, he needs to be in daily touch and constant sympathy with the professional masses, whose requirements and rights it is his especial function to voice and to champion. The medical press should be at once the eye, the ear, and the voice of its readers, and especially of the lowly among them.

"An editor must quickly form opinions and firmly express them, but he does well not to enter into controversy. 'For controversy,' it has been well said by Dr. Oliver Wendell Holmes, 'equalizes fools and wise men in the same way—*and the fools know it.*' It is a prudent thing to refuse to be drawn into controversy, especially in the pages of one's own journal. Don't lose time in altercation, for in much altercation truth is lost. Let every man have his say, let him contradict you, let him attack, provided he does so in the limits of courtesy and of good temper. Learn from him, and let others learn. Do not answer him or put tags to his letter, unless some rectification of facts is necessary.

Among the earliest lessons for an editor to learn, and it is one also which must last him during all his life, is to be slow to think evil, and to be hard of hearing for personal accusation. The accused so often turns out to be whiter than the accuser."

These were the earnest words of Ernest Hart, spoken in his address before the American Medical Editors' Association at Milwaukee, Wisconsin, in June, 1893. They reflect the character of the lately deceased editor of the *British Medical Journal.*

Symposium on Brain Tumors.—The symposium on tumors of the brain for the Section on Neurology and Medical Jurisprudence of the American Medical Association, is arranged as follows: Symptomatology, Dr. C. H. Hughes; Ocular Symptoms, Dr. Edward Jackson; Diagnosis, Dr. C. K. Mills; Localization, Dr. Frederick Peterson; Treatment: Neurological, Dr. Philip Coombs Knapp; Surgical, Dr. W. W. Keen; Informal discussion.

The Fate of the First Woman Doctor in America.—Dr. Herbert C. Varney, of St. Paul, Minn., in a lecture at the New York Post-Graduate Medical School, October 21st, 1897, on the subject of Physicians and Apothecaries in Puritan, New England, thus records the sad fate of the first woman physician in New England, but her sisters now rushing into the profession will not take warning:

"The first women who tried to engage in the practice of medicine in Massachusetts do not seem to have met with very good success. The famous Anne Hutchinson tried her hand at medicine, but on account of her religious opinions was banished from the colony. Another, Margaret Jones, of Charlestown, was indicted and found guilty of witchcraft upon the following evidence:

"1. She was found to have a malignant touch, so that whosoever she touched was taken with deafness and vomiting. 2. She practiced physic; her medicines being harmless; such as anise seed and liquors, yet they had extraordinary and violent effects. 3. She told those who would not use the "physicke" that they would never get well, and accordingly their diseases continued, contrary to the efforts of the physicians and surgeons. 4. She had the witches' marks.

"In spite of her protestations of innocence, poor Margaret was hanged as a witch on Boston common in 1648. Those were the days when this law was on the statute books: 'If any man or woman be a witch, that is, hath or con-

sulteth with a familiar spirit, they shall be put to death."

"The blood of the martyrs is the seed of the church" and women are hard to kill off, when they have an idea to work off any way, as all married men know. Keep on coming, ladies. We welcome you with open arms to our *armamentaria medicinae*. Anything we have in the shop just take it. We can't help ourselves and submit to our fate.

The New York Medical Times, the most nearly non-sectarian of all the sectarian medical journals on our exchange list, approaches so near to regular medicine, in scanning and selecting from the whole field, that we cordially welcome it on its fiftieth anniversary into the family of rational medicine. The time is approaching when the medical lion and the medical lamb among the sects shall lie down together and cease to lie about each other, and then will come the millennium of medical harmony "without distinction of sect or previous condition of servitude" to restrictive tenet or dogma, and theoretical, shall be replaced by practical clinical, medicine and the therapy of a rational experience.

Medical Experts.—Waldo Coe of the *Medical Sentinel* thus speaketh on this theme: "Almost any method proposed would to some extent restrict the facilities and opportunities which the innocent might wish to employ to defend their rights in a court of law. While no doubt, many guilty men escape punishment, as a result of manufactured or prejudiced medical expert testimony, yet it should not be forgotten that the axiom, it is better to have ten guilty men escape than that one innocent should suffer, meets the views of civilized thought, and we must always have most in mind the rights of the innocent individual whose life, liberty or property is in question.

"Our chief objection is the arrogant assumption of superior upon the part of many other classes of people, when referring to the medical expert, assuming that experts in medicine should agree, or else the science of medicine must suffer in comparison with other professions or callings. Two farmers will not agree upon the simple question of how to sow, how to reap or how to gather into barns; two expert mechanical engineers will disagree upon so definite a subject as the strength of metals or other substances; two preachers will point different roads to heaven and, if necessary, will die to demonstrate the wisdom and certainty of their respective claims; while the lawyers, and we fear they

more than others criticise medical experts, stand in court every day by the thousands, disagreeing upon the simplest questions of facts, and back their contentions over the points of law by wagon loads of law books and court decisions, out of which, in these latter days, any kind of opinion may be demonstrated. Of all men, who should not object because medical experts disagree, the lawyer whose life is founded upon the fact that men in every walk of life see things in a different light from his fellows, should have the least to say concerning the diversity of opinion among medical experts. After all, the jury box is where the whole matter must be settled. The juror weighs all the evidence, expert and otherwise. Truth finds a firmer foundation than falsehood. Reason is more plausible than error. As the judge sifts the facts from the multitude of conflicting opinions, giving weight to that most reasonable and cites the law bearing upon the important points elicited, the juror, with all his faults, comes near the truth in his verdict.

"The profession should be foremost in every effort to bring medical expert work up to a higher plane than it has heretofore occupied, but this must be done in the interest of truth. If we are to select medical experts, however, in such a manner as to prevent differences of opinion because such views throw disfavor upon the medical profession, we are not seeking the highest attainable object. The medical profession, with all its shortcomings, will always have just the amount of respect from the public which it deserves, which has been and always will be, second to that given to no other class of people."

Coe, we coincide with you fully and offer our co-operation. Experts appointed by courts will not remedy the evils of wrong or false pseudo expert testimony. The evil is coincident with the weakness and wickedness of human nature. The best and surest remedy is more capable lawyers, more expert cross-examination sledge hammer court instructions defining experience and not *ipse dixit*, as the qualification and test of expertness, and enlightened juries.

Percussion of the Skull.—Dr. John B. Hamilton, editor *Journal A. M. A.*, thus calls timely attention to this subject important to neurologists and neuro-surgeons: "It was announced at the Italian Congress of Surgery, which concluded its sessions at Rome, October 30, that percussion of the skull is perfectly practicable and will be found a valuable aid in diagnosing. E. De Paoli and A. Mori have made an extensive study of the subject, and state that the

sound obtained by percussion with the fingers is produced by the vibrations of the bone walls, the contents of the skull and the air in the buccal cavity. Any modification in the sonority indicates an intracranial lesion and also its exact location. The sound obtained by percussion of symmetric points is identical if both are normal. They introduced the yolk of an egg, blood and other substances, into the skulls of cadavers, and the variations in the percussion were instructive. Applying the results of these experiments to patients with circumscribed lesions, they diagnosed positively by percussion, the exact location of cerebral abscesses, hematoma under the duramater, localized meningitis, etc., and the diagnosis was confirmed in every point by the operation or necropsy later. When percussion is painful they use the stethoscope placed on the bregma."

The subject is worthy of yet further research. Cranial percussion has an undoubted place in physical diagnosis. Without publishing our results, we have resorted to it for many years chiefly with a view through the tenderness or pain elicited on percussion to find the intracranial *locus mori* when the scalp was not tender to pressure.

The Aphasias and Their Medico-Legal Relations.—Dr. F. W. Langdon, of Cincinnati, has taken up this important subject and discussed it in the *Lancet-Clinic*, of Cincinnati. "The paper concludes with an *á priori* statement as to the value of a legal document directed by aphasics, in case insanity can be excluded." Dr. C. H. Hughes, of St. Louis, was the first neurologist in any country to present this subject in its medico-legal aspects; *Vide*, *The American Journal of Insanity* for January, 1879, article entitled "Aphasia or Aphasic Insanity, Which?"

American Medical Association.—The following is a preliminary announcement of the Committee of Arrangements of the forthcoming meeting at Denver, Colo., June 7 to 10, ultimo: The Committee of Arrangements announces that preparations for the coming meeting are well advanced. A large number of prominent men have signified their intentions to be present and read papers, and an excellent scientific program is assured. The indications all point to a large and successful meeting.

Convenient and ample accommodations have been secured for the General Sessions, Section work, Registration and Exhibits.

The entertainment of members and their families is

being planned on an elaborate scale and the Committee promises all who may come a most enjoyable time.

Denver is an interesting city, and the State offers many and varied attractions to visitors.

Local excursions are being arranged to take place after the meeting that all may have ample opportunity of visiting various points of interest in the State and seeing the best scenery of the Rocky Mountains.

The Committee confidently expects to obtain a one-half rate and 30-day limit for the round trip on roads West of Chicago and St. Louis, and reduced rates on Eastern roads. The rates will be announced in the Journal of the Association as soon as definitely determined.

The North American Medical Journal of Diagnosis and Practice has our thanks for its able defense of our small bill against the estate of Joseph B. McCullough, deceased. The bill should have been twelve thousand instead of six thousand dollars, and would have been had we known the full value of the estate.

Our counsel and medication kept the distinguished editor at his post of duty two years longer than he might have remained there without our services. Had the service been legal instead of medical and saved fifty thousand dollars in time and money to the same individual, the legal fee would have been at least twice six thousand dollars. We saved to our client time and money and a working degree of health. Many a skillful surgical operation, which we might well perform, but which we now forego, would cost as much as our bill and yet for less time, service and skill than our prolonged treatment.

Public justice, by way of adequate recompense will be done our craft by and by when medical men come to appreciate themselves and each other better, as the lawyers do.

Speaking of the *North American Journal* reminds us to note the fact that it is an eminently practical and meritorious medical periodical, as it is level-headed in its judgment, respecting justice due medical men for professional services. It is a new candidate for popular medical favor and will win. Its editors, Powell, Kieffer and Ehrhardt, and its business manager, Lewis, are not of the kind that fail. Energy, industry and ability are characteristic of this quartette and the medical trio cannot be excelled.

Expert Testimony in Criminal Trials.—There has been introduced into the assembly of the State of New York a bill which, according to the *Sun's* Albany corre-

spondent, provides that upon the trial of all indictments for felonies in a court of criminal jurisdiction, whenever it is made to appear to the court that the trial of issues will probably require the introduction of medical expert testimony, the court may, upon application of either party, appoint such number of experts as the court shall deem proper, not fewer than three or more than five. Such experts shall in all cases be persons skilled in medical and surgical science, or in both, and shall have been duly admitted to the practice of medicine in the State of New York, provided that in special and extraordinary cases the court may in its discretion appoint expert persons resident in other States and duly qualified and admitted to practice medicine in the State where they reside. Each expert witness so appointed shall receive such compensation as the court shall prescribe, which shall not be less than $10 nor more than $100 per diem while in actual attendance upon such trial, and mileage the same as is allowed to other witnesses, which shall be paid by the county.

NOTES.

The Rush Medical College will become affiliated with the University of Chicago, June 1, 1898.

A Description of the Lefoten Islands and their Principal Products is one of the products of that enterprising and advanced firm, Park, Davis & Co. It illustrates the cod fisheries of that section, and tells of their Egg Emulsion of Cod Liver Oil.

Doctors Versus the Declaration of Independence.—Five practitioners of medicine signed the Declaration of Independence; Benjamin Rush of Philadelphia, Lyman Hall of Georgia, Oliver Wolcott of Connecticut, Josiah Bartlett and Mathew Thornton of New Hampshire.

Iquinin, Toniquinin, Laxiquinin.—We acknowledge receipt of literature and samples of these preparations "intended only for the profession," and take pleasure in expressing our appreciation of the preparations and of the reliability of the firm offering the same to the profession.

Substitutes for quinine are in order, if only in name, for prescribing, but Iquinin is something more. It is a blended coal tar and cinchona derivative of real therapeutic value.

Roentgen Rays and Military Surgery. Among the British troops in India the Roentgen rays are being used with great success in locating splinters of lead which would otherwise escape detection, as well as fractures and splinters of bone.

The University of the State of Missouri, Columbia, announces a Summer Course in Bacteriology for medical students and practising physicians, to begin May 17 and continue to June 29, 1898, to be conducted by Dr. William Ophüls, Professor of Bacteriology and Pathology in the University of the State of Missouri. The instruction is open to medical students duly matriculated in colleges of repute as well as to practising physicians. The fee for the entire course will be $10.

Dr. Cruzius, of St. Louis, whose death occurred lately, was well known, not only on account of his medical attainments, but as a caricaturist of much ability. The "Skeleton Sketches" issued by the Antikamnia Chemical Co. are familiar to our readers and testify to the great originality of Dr. Cruzius who has now gone the way of all flesh.

The Antikamnia Chemical Co., of St. Louis, sends out a unique calendar for 1898. Apply to the company and enclose professional card or prescription blank and you will get one.

A New Book on Nervous and Mental Diseases, by Archibald Church M. D., Professor of Mental Diseases and Medical Jurisprudence in the Northwestern University Medical School, Chicago, and Frederick Peterson, M.D., Clinical Professor of Mental Diseases in the Woman's Medical College, New York. Saunders, publisher, Philadelphia, announces a book with the above caption.

Professor Forel Resigns.—Dr. Forel, professor of psychiatry in the University of Zurich and director of the State Asylum for the Insane, has resigned these offices, owing, it is said, to the attacks made upon him by the Press for the part he has taken in opposing the use of alcohol.—*Therapist.*

CORRESPONDENCE.

SOME CURIOUS NERVOUS PHENOMENA ASSOCIATED WITH A CONDITION OF PHIMOSIS; IMPROVEMENT FOLLOWING CIRCUMCISION.

Dr. Alex. L. Hodgdon, Dispensary Physician to Department of Nervous Diseases, College of Physicians and Surgeons, Baltimore, Md., sends the following:

G. T., aged two years and seven months, cannot walk, suffers from asthmatic breathing and also has a condition of nystagmus. I circumcised him on April 2nd, 1897, and on May 20th of the same year, those who are taking care of him say he stood alone (without holding on to some object) for the first time in his life, and his breathing has grown so much better that hardly any difficulty is noticed. He sleeps better and the nystagmus has decreased greatly. On June 21st, 1897, they say G. L. has walked by himself and his breathing is alright now. At this date, April 4th, 1898, those who take care of him say that his breathing is alright and the nystagmus improved from what it was originally. He relapses, I understand, sometimes into his asthmatic condition, but at this time, I hear, is free from asthmatic breathing.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

OFFICE OF SECRETARY AND TREASURER,

FLINT, Mich., March 26th, 1898.

Dear Doctor: The fifty-fourth annual meeting of the American Medico-Psychological Association will be held in St. Louis, Mo., May 10th-13th, 1898. The headquarters of the Association will be at the Southern hotel. This is large, commodious, centrally located, and has abundant facilities for the entertainment of the Association. A hall for general sessions and rooms for committees are provided without charge. Rates have heretofore been given. It is suggested that reservation of rooms be made at an early date by those who expect to attend the meeting. The annual address will be delivered by Dr. J. T. Eskridge, of Denver, Col., the subject being "The Mutual Relations of

the Alienist and Neurologist in the study of Psychiatry and Neurology."

The following is a partial list of papers promised:

"A Case of Sleep-Talking," D. R. Burrell, M. D.; "Ephemeral Mania," T. J. W. Burgess, M. D.; "Does the Loco-Weed Produce Insanity in Man," C. W. Pilgrim, M.D.; "Thyroids in Insanity," B. W. Stone, M. D.; "The Nerve-Cell Changes in Somatic Diseases," Aug. Hoch, M. D.; "Practical Methods in Physiological Chemistry," R. H. Hutchings, M. D.; "The Judicious Training of Neurotic Children an aid to the Prophylaxis of Insanity," D. R. Brower, M. D.; "A Short Study in Psychic Phenomena," H. C. Eyman, M. D.; "Folk Lore in Insanity," Henry M. Hurd, M. D.; "Further Studies of Insanity Following Surgical Operations," Richard Dewey, M. D.; "Hospitals for Acute Cases," Wm. M. Edwards, M. D.; "Asylum versus Hospital," J. Russell, M. D.; "Insanity Defined on the Basis of Disease," C. H. Hughes, M. D.; "The Scientific Border-Line between Sanity and Insanity," E. C. Runge, M. D.; "Insanity, So-Called, as a Neurosis," C. Gapen, M. D.; "Clinical Resemblances in Neurasthenia, Hysterical Insanity, and some Forms of Circular Insanity," E. A. Christian, M. D.; "Simple Melancholia," John Punton, M. D.; "Syphilitic Dementia," C. R. Woodson, M. D.; "Insanity and Homicide," H. E. Allison, M. D.; "Sub-Conscious Homicide and Suicide; Their Physiological Psychology," C. P. Bancroft, M. D.; "Psychical Epilepsy in its Medico-Legal Relations," C. H. Hughes, M. D.; "Occupation in the Treatment of the Insane," Frank C. Hoyt, M. D.; "Better Care for the Chronic Insane," H. A. Gilman, M. D.; "The Boarding-Out System in America: Why Not?" G. Alder Blumer, M. D.; "The Wisconsin County Care System," W. B. Lyman, M. D.; "State versus County Care for the Insane," B. D. Eastman, M. D.; "The Value of Hospital Records," Wm. Mabon, M. D ; "Hospital Treatment for Acute Insanity," A. B. Richardson, M. D. Papers by O. R. Long, M. D., H. M. Bannister, M. D., G. H. Rohe, M. D., W. E. Dold, M. D., the titles of which are not announced, are also promised.

The committee of arrangements has planned entertainment for members of the Association and their ladies, the announcement of which will be made at the proper time. In addition, the committee recommends to the Association an excursion to Hot Springs. It is believed that this can be made a most enjoyable feature of the meeting. If a sufficient number of members signify their willingness to go to warrant the committee in perfecting arrangements, plans will be made to leave St. Louis, Friday evening, May 13th, arriving at Hot Springs about noon Saturday. Breakfast will be taken at Little Rock and the beautiful country on the Iron Mountain Route, between this point and Hot Springs, will be traversed in the morning. A special round-trip rate of $12.50 (which is one fare one way) has been secured from the railway company. *This rate is exclusive of*

sleeper. The best hotels at Hot Springs offer to members accommodations at $2.50 per day. In the judgment of the committee this is an unusually good opportunity to visit Hot Springs under favorable conditions at small expense, and it has been decided to ask for an expression from members concerning the trip. Please fill out and return the enclosed slip.

Yours respectfully,

C. H. BURR, Secretary.

IN MEMORIAM.

DR. J. Q. A. STEWART, who died January 25th, 1898, at the "Stewart Home" near Frankfort, Ky., was a bright light of the profession, a leader in the education and training of the feeble-minded. In 1859 he was graduated from the Kentucky School of Medicine. In 1878 he accepted the medical superintendency of the Kentucky Institution for Feeble-Minded Children, a position which he filled with distinction for fifteen years or more. In the spring of 1893 Dr. Stewart bought the old Kentucky Military Institute, six miles from Frankfort, and established his son therein as manager of the "Stewart Home," and in the following year became himself connected with this private and well-known institution. He was an ex-president of the Association of Superintendents of Institutions for the Feeble-minded, and contributed valuable papers at their different meetings. In the industrial reforms of feeble-minded institutions, he was the pioneer in inaugurating the teaching of useful trades to the brighter patients. He was elected to the presidency of the State Medical Society of Kentucky in 1893.

REVIEWS, BOOK NOTICES, ETC.

THE SURVIVAL OF THE FITTEST. Robert D. Jewett, Editor of the *North Carolina Medical Journal*, pays our esteemed college faculty colleague, Professor J. T. Jelks, the tribute of the following editorial quotation from his address to the Graduating Class of Barnes Medical College:—

In these days of "progress and rapid advancement" one often sees the old tried friend pushed aside and the new man, the man of modern ideas, set up in his place, and the sight cannot fail to bring a feeling of sadness and of wonder at the ways of men. The editor of the *Hot Springs Medical Journal* has portrayed in such a forcible manner this phase of nineteenth century character that we cannot refrain from copying a portion of his remarks. After referring to the passing of the American Indian, the putting aside of the old horse worn out after years of faithful service and of the faithful dog, who in his own way has done his part to add to his master's pleasure, he goes on to show that even the lawyer, the friend, and the minister must share in the common fate of those who are not "up-to-date."

"And the doctor! What of him in the pitiless operations of this law? Surely, he may escape it! No, indeed. He feels its force probably before the old lawyer or the old friend. He may have spent his best days and nights in ministering to the wants and whims of his clientele. He has answered their calls at all times, gone to them through the storms, and snows, and floods, and when the sun was a firey furnace. In pestilence, he has stood by them. He has ushered into the world the children of the family, has saved the lives of these children in some dreadful sickness, has borne them upon his heart and in his brain, and known no rest until the burning fever was assuaged and the glow of health was mantling again their cheeks. He has snatched the mother, maybe from an untimely grave, or the father, the bread-winner, has been enabled to go back to labor with a glad heart and vigorous frame. The invalid wife has

"The bright flush of health mantling high on her cheeks,"

and grows fat and strong. And all this because of the judgment and skill of some humble deciple of Æsculapius. One would think, surely this man is exempt! As man and as physician, and as friend, surely he is not bound to this dreadful juggernaut, to be ground to pieces in its awful progress! Yes, though he is friend and physician, he must feel its crushing effects. He, too, must see his clientele forsake him for another who pleases the fancy or

tickles the palate. The woman who has looked into his eyes with tears of gratitude in hers, gratitude for the life of a husband or child, snatched as it were from the grave, now meets his look coldly as he passes by. Maybe her own health has been restored by this humble doctor, and, instead of praises, she now speaks of him as "to old," or "his medicines are too strong," and she has gone off to some pathy, or some new and wonderful man has arrived in town, and the true and tried man loses his business and his friends at one fell swoop. We have all seen the old doctor, ripe in years and experience, deserted by those whom he has saved, and left to nearly starve in a land of plenty. The beautiful tribute Talmage paid to his family physician is not in their hearts."

To prepare himself far such a time Dr. Jelks admonishes physicians to cultivate more carefully the business side of life; see that your accounts are collected promptly; lay by you in store for that rainy day, when even if your friends stick to you your physical conditions will cause you to lay down the spatula and scalpel; and when, like the old horse who has fulfilled his mission, you may not. otherwise, find a pasture wherein you may graze. For the man of small means we know of no better investment than the modern life insurance policy, which for a nominal sum per annum provides for a man's family in case of his death and for his own old age in case of his continued living. Reader, if you have no certain provision for your family and your own old age, let it be one of your new year resolutions to invest something in this way at once. If your income will not permit you to take a policy for $10,000, or $5,000, then take one for $3,000, or even $1,000, payable to yourself at the end of ten or twenty years, and to your family in case of your earlier death. Old age may come, and death must; don't let them find you unprepared.

STUDIES IN THE PSYCHOLOGY OF SEX, Sexual Inversion, by Havelock Ellis, Fellow of the Medico-Legal Society; Honorary Fellow of the Chicago Academy of Medicine; Vice-President of the International Medico-legal Congress of 1895.

The origin of these studies dates from many years back. As a youth, the author relates, he was faced, as others are, by the problems of sex. Living partly in an Australian city where the ways of life were plainly seen, partly in the solitude of the bush, he was free both to contemplate and to meditate many things. A resolve slowly grew up within him; one main part of his life-work should be to make clear the problems of sex.

That was more than twenty years ago. Since then he can honestly say that in all that he has done that resolve has never been very far from his thoughts. He has always been slowly working up to this central problem; and in a book published some three years ago—*Man and Woman: a Study of Human Secondary Sexual Characters*—he put forward what was, in his own eyes, an introduction to the study of the primary questions of sexual psychology.

As a youth, he had hoped to settle problems for those who came after; now he is quietly content if he does little more than state them. In this

particular field the evil of ignorance is magnified by our efforts to suppress that which never can be suppressed, though in the effort of suppression it may become perverted. The author has at least tried to find out what are facts, among normal people as well as among abnormal people; for, while it seems to him that the physician's training is necessary in order to ascertain the facts, the physician for the most part only obtains the abnormal facts, which alone bring little light. He has tried to get at the facts, and, having got at the facts, to look them simply and squarely in the face. If he cannot perhaps turn the lock himself, he brings the key which can alone in the end rightly open the door: the key of sincerity. That is his one panacea: sincerity.

The author maintains that the sexual secrecy of life is even more disastrous than such a nutritive secrecy would be; partly because we expend such a wealth of moral energy in directing or misdirecting it, partly because the sexual impulse normally develops at the same time as the intellectual impulse, not in the early years of life, when wholesome instinctive habits might be formed. And there is always some ignorant and foolish friend who is prepared still further to muddle things: Eat a meal every other day! Eat twelve meals a day! Never eat fruit! Always eat grass! The advice emphatically given in sexual matters is usually not less absurd than this. When, however, the matter is fully open, the problems of food are not, indeed, wholly solved, but every one is enabled by the experience of his fellows to reach some sort of solution suited to his own case. And when the rigid secrecy is once swept away a sane and natural reticence becomes for the first time possible.

We want to know, the author continues, what is naturally lawful under the various sexual chances that may befall man, not as the born child of sin, but as a naturally social animal, what is a venial sin against nature, what a mortal sin against nature.

The author regards sex as the central problem of life. Now that the problem of religion, he says, has practically been settled, and that the problem of labor has at least been placed on a practical foundation, the question of sex—with the racial questions that rest on it—stands before the coming generations as the chief problem for solution. Sex lies at the root of life, and we can never learn to reverence life until we know how to understand sex.

The author well sets forth his ideas and proposes in his general preface, and his observations and conclusions follow in the contents of the book. The book has a professional and social interest, which cannot be ignored, and Medico-legal aspects, as well as moral phases, which demand professional and philanthropic attention from medical man, medico-legist and moralist alike.

THE AMERICAN X-RAY JOURNAL, edited and published by Heber Roberts, M. D., besides its many other interesting features from the initial to the present number, presented in its initial issue a likeness and biography of Paul Zacchias, the great pioneer Roman Medico-Jurist which we intended reproducing for our readers, to show the all-round interest in medical mat-

ters with which this promising and able periodical began its useful career, but the matter was inadvertently overlooked. We give the text of this biography now, crediting the same both to the *X-Ray Journal* and the previous source, the *Medico-Legal Journal*, because of its interest and value to many of the younger readers of the ALIENIST AND NEUROLOGIST:

We present a portrait of this distinguished man, reproduced from the *Medico-Legal Journal* (Vol. III, No. 3), and was obtained by that journal from Dr. Herman Karnfield, of Grottkau, Silesia, who had received a portrait of him from a friend in Florence, copied from an original painting. Paul Zacchias was born in Rome in 1584, and died there in 1659, in the fullness of his mental vigor at 75. He was the father of medico-legal science. To him is due the systematizing of that peculiar combination which compels the jurist to examine into the physico-mental condition of the man who stands charged with violating the law, and forces the physicist to inquire into the working of the physiological machine, in order to trace a disorder, if any there be, and to bring to the light of day the mysterious cause that destroyed the harmony between mind and body, thus determining the responsibility of the will power and the irresponsibility of fatality.

Paolo Zacchias wrote independent works which were famous for their medical information and legal knowledge, though, of course, more or less tainted with the superstitious views regarding magic, demons, and witches which were so widely diffused at that time. He was the administration dictator over all matters pertaining to public hygiene, and was made expert to the *Rota Romana*, the highest Court of Appeals, composed of twelve princes of the church, elevated and inducted into these high offices by Pope Innocentius X., to whom he was body physician. The instigation of the practice of legal medicine was introduced into the courts by the penal code of Emperor Charles V. in 1532, but not until the remarkable production of Paolo Zacchias did medical jurisprudence become a science. He wrote the *Questiones Medico-Legalis*, which embraced three large volumes. The first contains the decisions of the "Rota," or Court of Appeals, and the others the questions propounded to him and his opinions. It is very remarkable, indeed, that there is hardly a question known to medico-legal science to-day which is not treated in that remarkable book, while problems are taken into consideration which our advanced position of physiology is not yet prepared to solve satisfactorily—such, for instance, as the questions of the formation of hermaphrodites, the animation of the fetus, superfetation, etc. Another treatise published by him discusses one of the most vital questions of medico-legal science. It is entitled "*De dementia et rationis laesione et morbis omnibus qui rationum laedunt quaestiones*," which furnishes hundreds of observations regarding mental disease that may be studied with interest and profit to this day. He wrote learnedly on medicine, and his talent was appreciated for poetry, music, painting, and theology. He was one of the foremost scholars of his time, a philosopher, an intellectual genius, and the peer of all his contemporaries.

ARSENAURO AND MERCAURO; CLINICAL RECORDS AS REPORTED IN MEDICAL JOURNALS.

This is a fair portrayal from writings of reputable medical men in different professionally recognized medical periodicals, and truthfully sets forth the merits of this valuable combination of three well-known therapeutic agents in most elligible form for facile administration.

Illustrations of blood states improved under its use, accompany the book. No patent facial picture of before and after taking, but indisputable blood evidences of its therapeutic value. The most sensible feature of the book is the following (letter, etc.) to the self-medicators, who seize upon and ruin so many really good proprietary medicaments in professional esteem:—

"Strictly Ethical.—In illustration of the ethical manner in which our business is conducted, we beg to say that each bottle of our solutions bears a definite statement regarding its exact contents.

"Dosage is entirely eliminated and the 'Caution' is made, 'should be used upon physician's prescription only.' Our line of work is entirely through the medical profession. We totally discourage self-prescribing, and in response to the thousands and thousands of communications received by us from the laity, asking for literature, etc., we send stereotyped response, an exact copy of which is appended:

"John Smith, Esq., Dear Sir:—Your valued favor at hand. There is no question regarding the remarkable therapeutic value of our preparations. It is, however, a matter of importance that they be administered under the careful observation of a medical practitioner. The question of dosage is most important, it being necessary to increase it, or decrease it, as certain manifestations appear. These points can only be determined by a medical practitioner. If you will send us the name of your physician, we will with pleasure communicate with him, placing before him all the facts which we possess in reference to our products. Our line of work is entirely through ethical channels, and while we claim that our products are in many ways extraordinary ones, it is only possible to secure their full therapeutic value through proper administration. We are manufacturing chemists, and as it is solely the province of physicians to prescribe, you will understand why we cannot send what you ask for. Respectfully yours, Chas. Roome Parmele Company."

THE PAST, PRESENT AND PROSPECTIVE TREATMENT OF INSANITY IN THE STATE OF NEW YORK. There comes to us from the State Hospital Print, Utica, New York. a reprint from the Proceedings of the New York State Medical Society, 1898, by Peter M. Wise, M. D., President of the New York State Commission in Lunacy, an interesting paper with the above caption. In this essay, Dr. Wise thus intelligently discusses the subject of the curability of insanity:

"Unfair criticism has been made of the present recovery rate in the insane hospitals as compared with that of a half century ago, without taking the character of admissions into consideration. Where recovery is logically impossible, it is illogical to anticipate it. It is well recognized that in some

forms of insanity, such as paralytic dementia, incurability is indelibly stamped upon the case at the outset of the alienation, and that the constitutional degeneracies are susceptible only of improvement and not of cure. (Fifty years since, the admission of a case of general paresis was a rare event, while at present fifteen per cent. of original admissions of male patients to State hospitals drawing from an urban district, suffer from this incurable disease.) The proportion of patients admitted to our hospitals at the present date whose insanity is the expression of a corrupt organism and incurable, is far in excess of former times and is progressing. The overworked, over-stimulated, over-fed, immoral and misguided are in greater excess than the proportion of those who succumbed to intemperance of living formerly were. Resistance is weakening through heredity, and the weapons of attack are increasing. Consequently what might properly be called the 'expectancy of curability' is decreasing, even while the means thereto are improving.

"In the development of children, the avocations of the matured, the connubial problem, and the most favorable conditions for the prevention of the patho-psychoses that lead ultimately to the insane hospitals, the general physician is placed where he can wield an almost incalculable power for good, and upon him must depend almost wholly whatever checks are exercised by society in the alarming destruction of nervous energy and resistance. He must have and will have at his disposal better defined laws of inherited defects, and better means of ascertaining them. The mysticism that has separated neuro-pathology and psychology from the physician at large, will pass away like the morning fog and leave clear to his understanding this mutual relation of body and mind, in the sunlight of a near and better time.'

This brochure also contains a valuable and complete directory of the State hospitals and licensed institutions for the insane in the State of New York.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA. Ffrom March, 1896, to January, 1897.

THE SIXTH ANNUAL REPORT OF THE SHEPPARD ASYLUM, BALTIMORE, MD., a Hospital for Mental Diseases, founded and fostered by a bequest from Moses Sheppard, Esq., a citizen of Maryland, is also on our table. Its pictorial features and the record of its good work in humanity's cause and the name of its distinguished Superintendent, Dr. Edward N. Brush, will also attract your attention. But that which most of all will merit your approval will be these potent words of charity of its noble founder:

"If I can believe that the money which I shall leave will be instrumental in restoring but five insane persons to health, or even four; Nay, if but one recovers, I shall feel that I have not lived in vain."

"Already the work accomplished by Moses Sheppard's trust has far surpassed this limit. The 'experiment' to which he was willing to devote his entire fortune has proven successful and is destined to continue to bring healing and comfort to many.

"The work which the Trustees of the Sheppard Asylum can accomplish with enlarged means cannot be estimated by mere statistical methods or measured dy money values. When Moses Sheppard, impressed with the belief, 'that many persons were made permanently insane for the want of kind treatment and proper attendance in the incipiency of their disease,' expressed a willingness to devote the whole of his fortune in making an experiment to test his belief upon the subject, he showed a comprehension of the matter far in advance of his time. Not only was he in advance of the general opinion of his day, but in advance of the opinion held by the medical men, with few exceptions."

TRANSACTIONS OF THE AMERICAN MICROSCOPICAL SOCIETY. Twentieth Annual Meeting held at Toledo, Ohio, August 5, 6 and 7, 1897.

This volume contains a collection of papers of interest and value to the microscopist as well as to the practitioner with a bend for microscopical technology, Besides the President's address on Microscopical Light in Geological Darkness, the report contains the following papers:—

Micro-structural Characteristics of Steel, Francis Scott Rice, Steelton, Pa.; The Rotifera of Sandusky Bay, D. S. Kellicott, Columbus, O.; Notices of some Undescribed Infusoria, from the Infusorial Fauna of Louisiana, J. C. Smith, New Orleans, La.; The Sporular Development of the *Ameba villosa*, Leidy J. C. Smith, New Orleans, La.; Some Points on Cleavage among Arthropods, Agnes M. Claypole, Wellesley, Mass.; A Comparative Histology of the Digestive Tract, Edith J. Claypole, Wellesley, Mass.; A Comparison of the Phagocytic Action of Leukocytes in Amphibia and Mammalia, John M. Berry, Peterboro, N. Y.; A Comparative Study of Hair for the Medico-legal Expert, William George Reynolds, Watertown, Conn.; A Study of the Organs of Taste, A. E. Loveland, New Haven, Conn.; Development of Methods in Microscopical Technique, Henry B. Warn, Lincoln, Neb.; Notes on the Isolation of the Tissue Elements, Simon H. Gage, Ithaca, N. Y.; Dahlia as a Stain for Bacteria in Sections Cut by the Collodion Method, Raymond C. Reed, Ithaca, N. Y.; The Hemospast, Veranus A. Moore, Ithaca, N. Y.; Two Very Simple Microtomes, Edward Pennock, Philadelphia, Pa.

THE NERVOUS SYSTEM AND ITS DISEASES. A Practical Treatise on Neurology, for the use of Physicians and Students. By Charles K. Mills, M. D. Diseases of the Brain and Cranial Nerves, with a General Introduction on the Study and Treatment of Nervous Diseases. Royal 8vo., pp. 1056. With Four Hundred and Fifty-Nine Illustrations. Philadelphia: J. B. Lippincott Co., 1898.

The book before us is in every way up-to-date. Its illustrations and subject matter and manner of treatment, sustain the well-earned reputation of its talented author, and in no way disappoint the critical student of modern neurology.

The first chapter sketches the nervous system, its tissues, and development, and gives the nomenclature and terminology—that of Wilder mostly. The general anatomy, the architecture and general physiology of the nervous

system, and the chemistry of the nervous system, are captivating and correct. The second chapter treats of General Pathology, Etiology, Symptomatology, Methods of Investigation, Electro-diagnosis, Prognosis and Therapeutics. Brain diseases and the affections of the membranes and vessels, occupy six chapters, and encephalic malformations and aberrations and the histology and physiology of the brain are duely considered. Affections of the special senses and those of the other cranial nerves, lesions of the medulla and pons; are well treated.

The book is all that could be expected from the eminent author and well-known publishers.

CHAPIN ON INSANITY, A COMPENDUM OF INSANITY, by John B. Chapin, M. D., LL. D., Physician-in-Chief, Pennsylvania Hospital for the Insane; late Physician-Superintendent of the Willard State Hospital, New York, etc. 12mo., 234 pages, illustrated.

On looking through this little volume you will see that it contains a clear, concise statement of the clinical aspects of the various abnormal mental conditions, together with directions as to the most approved methods of managing and treating the insane.

The book will supply a real need, insomuch as heretofore the physician and student have had no brief manual on this important subject, and have been compelled to search through the larger treatises for just such practical information as this book contains.

Written in clear, untechnical language, it will prove a most useful manual for members of the legal profession. By the layman, too, it will be read with much interest, and will furnish information of the utmost value, enabling him to recognize insane tendencies and provide intelligently for any case of insanity in the family that he may be called upon to care for temporarily.

It is a plain, practical book from a well-known source of clinical experience, the author having been nearly all of a long professional life, engaged in the management and treatment of the insane. W. B. Saunders 925 Walnut Street, Philadelphia, Pa., is the publisher.

SAJOUS'S ANNUAL AND ANALYTICAL CYCLOPÆDIA OF PRACTICAL MEDICINE, the first volume of which is now on our table, has for its object to facilitate the professional labors of the medical man.

If you are a practitioner, you will find therein suggestions innumerable, not only those usually considered in classic works, but also all the practical points worth recording found in the literature of the last decade.

If you are a teacher, you will find your lectures practically prepared for you, with examples, cases, warnings, suggestions, etc., calculated to strengthen all the points you may wish to bring before your class.

If you are a writer, you will find more upon each subject than you will be able to gather in a month's diligent search in libraries, even if you are an extraordinary linguist, since the literature of every country is represented.

If you wish to review recent literature, you will find it clearly separated from the rest, under appropriate headings and designated by "Literature of '96 and '97."

Nothing has been spared by the publishers to make the work worthy of its readers. The F. A. Davis Co., Philadelphia, are the publishers.

SOLUTION OF THE PROPRIETARY-MEDICINE QUESTION, by C. C. Fite, M. D., of New York City; Secretary of the Section on Materia Medica, Pharmacy and Therapeutics, American Medical Association. Reprinted from the *Philadelphia Medical Journal*, March 5, 1898.

The conclusion of this paper is as follows:—

If the Pharmacopeia does not give a young practitioner or pharmacist a list of what the profession is daily prescribing, it will be misleading and worse than useless, because it does not equip such young men for the competition they must meet. The Revision Committee of the Pharmacopeia may not be prepared at this time to fall in line, but it is only a question of time when they will be forced to do so, or the Pharmacopeia may as well be abandoned altogether. Instead of being used now as a reference-book by the profession at large, it is rarely seen in a physician's library, and its use will be more and more limited until it moves up in line with the practitioner's needs. "The farther the Pharmacopeia gets away from the physician's needs, the farther the physician gets away from the Pharmacopeia."

THE NORTH AMERICAN JOURNAL OF DIAGNOSIS AND PRACTICE, Volume 1, No. 2, edited by a trinity of capable writers, well known to the profession of St. Louis, Drs. Powell, Ehrhardt and Kieffer, is on our table, brim full of valuable matter. Its editors are all capable, clinically experienced and professionally ambitious, and full enough of vigor, faith and hope to make a new medical journal succeed and just young enough in medical experience to be dominated by that hopeful delusion that a good journal must necessarily be appreciated and successful. It ought to succeed if it can find the long-felt want all new enterprises feel, and fill it. We like the high professional tone, undoubted ability and friendly professional feeling apparent in this number before us, and from its make-up and our personal knowledge of its editors, we predict for it a prosperous future in consonance with our best wishes for its welfare on the field of medical journalism. Its business manager is Mr. Ben Lewis, 26 Lewis Place, St. Louis, and the Diagnosis and Practice Company publish it.

THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION. The proceedings of the American Medico-Psychological Association at the Fifty-third Annual Meeting held in Baltimore, May 11-14, 1897, published by the association and just received as we go to press, is thus approvingly noticed by the *Medical Age*, which approbation we cordially endorse:

The proceedings of this society constitute an important volume. The papers all exhibit a high degree of merit. There are a number of contributions which deserve a wider notoriety than will be secured by their inclusion in the present volume. It can only be recommended that all persons interested in mental science should secure themselves a copy of these proceedings. The work is excellently illustrated, with half-tones and tinted plates. Great credit is due those responsible for the presswork.

MEDICINE, Philosophically Considered, by Orpheius Everts, M. D., Cincinnati, O. Read before the Academy of Medicine of Cincinnati, October 11, 1897, and published in *Lancet-Clinic*, October 30, 1897.

An interesting review of the progress of medicine from the dark ages to the present, maintaining that medicine has kept pace with all other progress. The essay thus forcefully concludes:

"It stands in the same relation to ancestral medicines that modern industrial, governmental, and religious affairs stand to antecedent conditions. No other human affair has profited more, indeed, by the gradual movement of mankind from the wilderness of Supernaturalism toward the fruitful plains of Nature than has medicine. Quickened by the stimulating pabulum of science on which it has been feeding since its emergence from the ghost-haunted defiles of Superstition; grown higher, wider, stronger by that it feeds on; it is fast becoming not only a rescuing, but a guarding and defending angel in its ministrations of beneficence toward the human race.

THE UNIVERSAL MEDICAL JOURNAL has been succeeded by the *Cyclopedia of Practical Medicine* under the same editorship of Dr. C. E. de M. Sajous, of Philadelphia, late of Paris. The new publication will follow the footsteps of the old in being the compliment to the *Annual of the Universal Medical Sciences*, which well-known work of the same editor stands high in the esteem of the profession. The *Annual* is also to undergo some important modifications which will much enhance its value to the profession. The first number of the new journal is a very creditable and interesting one.—*Cleveland Journal of Medicine.*

THREE LITTLE BOOKS. Battle & Co. have gone into the book business on a small scale, and send us three little books, one on Hysteria, one on Syphilis and one on Dysentery. They boom their specialties, of course, Papine, Iodia and Bromidia. Good men wrote the little books and say good words for each of the valuable specialties. But our readers already know the value of these standard proprietary articles so that there is little need of further "Battle" on the subject. They have already fought their way to professional recognition.

DAYDREAMS OF A DOCTOR, has already received substantial recognition, and we think it will prove of interest to members of the medical fraternity, and to all those who are brought into close relations to the profession. It deals with incidents of interest in the daily life of a doctor and ends in truly romantic style by the marriage of the male and female medical hero and heroine of the book when they, in true novel style, pass out of sight forever. The Peter Paul Book Company, Buffalo, N. Y., is the publisher.

THE MONTHLY CYCLOPÆDIA OF PRACTICAL MEDICINE, will replace the *Universal Medical Journal*. In the introduction the editor, Dr. Sajous, gives the reasons for this change and an outline of an important modification which is also to be made in the plan of the *Annual of the Universal Medical Sciences*, the first volume of which will be out shortly. An

interesting editorial on the "Treatment of Cancer" appears in the first number, and the measures recommended appear to be of great value.

THE TOLEDO STATE HOSPITAL. One of the most elaborate, best designed and best illustrated hospital reports that have of late come to this office is the Fourth Annual Report of this institution, now on our table. Dr. H. A. Tobey is the able and accomplished medical head of this magnificent and well-planned state institution for the insane, of which Ohio should be justly proud.

THE WELL-KNOWN BUTLER HOSPITAL continues to keep in the van of progress of institutional psychiatry. The beautiful illustration of the Thomas Poynton Ives Goddard House, a new ward for women, decorates the front page of this well-managed institution, famous for its accomplished medical superintendents, of whom the present physician in chief. Dr. W. A. Gorton, is not among the least.

CRIME AND CRIMINALS. From the press of the W. T. Keener Co., Medical Publishers, 96 Washington Street, Chicago, Ill., comes an interesting book with numerous facial and cerebral illustrations, on crime and criminals, by J. Sanderson Christeson, M.D., formerly of the New York City asylums for the insane, Blackwell's Island, author of Normal Mind, Evidence of Insanity, etc.

The book will prove helpful to the student of Criminology, normal and abnormal. The book is a reproduction of the author's *Chicago Tribume* series of Jail Types, which attracted much attention at the time of their first appearance in that paper.

THE PATHFINDERS, by James T. Jelks, M. D., Hot Springs, Ark., Professer of Gynæcology and Syphilology in Barnes Medical College, St. Louis, Mo.; formerly Professor of Genito-Urinary Surgery and Venereal Diseases in College of Physicians and Surgeons of Chicago; Ex-President of Arkansas Medical Society.

An address of unusual merit and interest to the student, of men in medicine. "The Pathfinders" are well portrayed.

THE X-RAY JOURNAL will prove an especially valuable addition to the library of all neurologists and surgeons, and of service to every practitioner of medicine and physicians who may be called upon in court in certain cases.

How Does Our School System Influence the Health and Development of the Child? By E. Stuver, M. Sc., M. D., Ph. D., Member American Medical Association, Active Member National Educational Association, etc., etc.

This brochure is worthy of the attention of all who have the care and training of the children of the land in their keeping.

The Antitoxin Treatment of Tuberculosis, or the Direct (Tuberculin Preparations) Versus the Indirect (Animal Serum) Method of Immunization Aganst Tuberculosis; by Charles Denison, A. M., M. D., Emeritus Professor of Diseases of the Chest and of Climatology, University of Denver; Ex-President of the American Climatological Association, etc., etc.; Denver, Colorado.

The Clinical Value and Chemical Results of Using Professor Gertner's Mother Milk in Children, by Louis Fischer, M. D., Professor of Diseases of Children in New York Clinical School of Medicine; Attending Physician to the Children's Department of German Poliklinik, etc., etc., and Herman Poole, F. C. S., New York.

Systeme Nerveux Central, Coupes Histologiques Photographiées, 12 Planches Tirées en Phototypie, Concernant l'anatomie pathologique de la paralysie générale. Dr. J. Dagonet. Librairie; J. B. Bailliere et Fibs, 16 Rue Hantefenille, pres du Boulevard, Saint Germain, Paris.

Chairman's Address, Presented to the Section on Obstetrics and Diseases of Women, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1st to 4th, 1897; by Milo Buel Ward, A. M., M. D., Kansas City, Mo.

Nervous Disease in Early Syphilis, by G. Frank Lydston, M. D., Professor of the Surgical Diseases of the Genito-Urinary Organs and Syphilology in Chicago College of Physicians and Surgeons; Surgeon in Charge of the Masonic Hospital of Chicago, etc., etc.

Sleep, Sleeplessness and Hypnotics, by S. V. Clevenger, M. D., Consulting Physician for Nervous and Mental Diseases, Reese and Alexian Hospitals; Member of the Association of American Anatomists, American Anthropometric Society, etc., etc., Chicago,

Transactions of the Medical Association of the State of Missouri at its Thirty-ninth annual session, held at Sedalia, Missouri, May 19, 20 and 21, 1896, and at its Fortieth Annual session held at St. Louis, Missouri, May 18, 19 and 20, 1897.

Report of the Committee of the American Neurological Association, on the After-Care of the Insane, Submitted on May 5th, 1897, at the Twenty-third Annual Meeting of the Association. Henry R. Stedman, Chas. L. Dana, F. X. Dercum, Committee.

On the Endogenous or Intrinsic Fibers in the Lumbo-Sacral Region of the Cord, by Alexander Bruce, M. A., M. D., F. R. C. S., etc.; Assistant Physician to the Royal Edinburgh Infirmary, Lecturer on Pathology at Surgeons' Hall.

The Needs and Rights of Old Age. Doctorate Address Delivered at the Commencement Exercises of the Hospital College of Medicine, McCauley's Theater, Louisville, July 1, 1897. By I. N. Love, M.D., St. Louis, Mo.

Notes on the Non-Surgical Treatment of Boils, Carbuncles and Felons, by L. Duncan Bulkley, A. M., M. D., Physician to the New York Skin and Cancer Hospital, Consulting Physician to the New York Hospital, etc.

Neurology in Relation to General Medicine, by Hugh T. Patrick, M. D., Professor of Neurology in the Chicago Polyclinic; Associate Professor of Nervous Diseases, Northwestern University Medical School, Etc., Etc.

Some Comparison of the Poisons of Diphtheria, Scarlet Fever and Membranous Croup, as Shown by Administration to Animals, with a Statement as to the use of Antitoxine, by Charles J. Renshaw, M. D.

Electric Treatment in Gout and the Uric-Acid Diathesis, by Robert Newman, M. D., Consulting Surgeon, Hackensack Hospital; Ex-President, American Electro-Therapeutic Association, etc., New York.

The Ideal Citizen, A Thanksgiving Discourse, by Rev. Sam'l J. Niccolls, D. D., Chaplain of the Veterans of the Blue and the Gray. Delivered in the Second Presbyterian Church, St. Louis, Mo., Nov. 25, 1897.

Antiphthisin, by Llewellyn P. Barbour, M. D., Professor of Materia Medica and Therapeutics and Lecturer on Diseases of the Chest, Medical Department of the University of the South, Tullahoma, Tenn.

Report of 182 Cases of Pulmonary Tuberculosis treated at the Winyah Sanitarium, Asheville, N. C., with Antiphthisin and Tuberculocidin—Klebs, by Karl von Ruck, B. S., M. D., Director of the Sanitarium.

Experiences During Thirty-eight Years of Opthalmic Practice With Large Paracentesis of the Sclerotic with Ciliotomy in Acute Glaucoma. (Mr. Hancock's Method), by S. Pollak, M. D., St. Louis, Mo.

In the Supreme Court of Missouri. State Upon Information of Attorney-General vs. The Trust Companies. Argument of H. S. Priest, Attorney for Mississippi Valley Trust Company, to the Court.

Solution of the Proprietary Medicine Question, by C. C. Fite, M. D., of New York City; Secretary of the Section on Materia Medica, Pharmacy and Therapeutics, American Medical Association.

A Phase of the Treatment of Goutiness, by Reynold W. Wilcox, M. D., of New York; Professor of Medicine and Therapeutics, New York Post-Graduate Medical School.

A Case of "Word" Without "Letter" Blindness. By James Hinshelwood, M.A., M.D., F. F. P. S. Glasg., Surgeon to the Glasgow Eye Infirmary, etc., Glasgow.

The Successful Treatment of Pulmonary Tuberculosis by the Hypodermic Use of a Compound Solution of Iodine, by Charles Wilson Ingraham, M. D., Binghamton, N. Y.

Diagnosis in Abdominal Disorders. Presidential Address to the Western Surgical and Gynæcological Association, by Joseph Eastman, M. D., LL. D., Indianapolis, Ind.

Transactions of the Medical Society of the State of North Carolina. Forty-fourth Annual Meeting held at Morehead City, N. C., June 8th, 9th and 10th, 1897.

Tumor of the Spine; Compression-Myelitis; Operation; Death on the Ninth Day, by J. T. Eskridge, M. D., and Edmund J. A. Rogers, M. D., of Denver, Col.

Report of Treatment of Secondary Anemias with Cases, by J. A. Stoutenburgh, M. D., Late Resident Physician, Columbia Hospital. Washington, D. C.

Case of Hernia Through a Rupture of the Uterus, Necessitating Resection of Thirteen Feet of Intestine; by H. S. Crossen, M. D., St. Louis, Mo.

Note on Diastatic Preparations, by Willis G. Tucker, M. D., Ph. D., Professor of Inorganic and Analytical Chemistry, Albany Medical College.

Ett Fall af Ensidig Primaer Glios I Corvikaldelen af Ryggmaergen, Aefven Beroerande den Uppstigande Trigeminusroten, af E. A. Homén.

Method of Securing Health of Insane Convicts, by H. E. Allison, Medical Superintendent Matteawan State Hospital, Fishkill-on-Hudson, N. Y.

Some of the Therapeutic Properties of the Thyroid Gland, by J. T. Eskridge, M. D., Denver, Colo., Neurologist to St. Luke's Hospital.

Nagra Synpunkter Betræffænde Fœrhallandet Mellan Sifilis Och Tabes Aefvensom Behandlingen af Tabes, af E. A. Homen, Helsingfors.

Amblyopia from Suppression, Congenital Imperfection or Disuse; Which or All? By Leartus Connor, A. M., M. D., Detroit, Mich.

A Case of Dyslexia: a Peculiar Form of Word-Blindness. By James Hinshelwood, M.A., M.D., F. F. P. S. Glasg., Glasgow.

Nya Aidrag till Kænnedomen om en Særgen Familjesjukdom Under Form af Progressiv Dementia, af E. A. Homen, Helsingfors.

Report of Two Cases of Syphilis, With Remarks Relative to Ptyalism, by C. Travis Drennen, M. D., of Hot Springs, Ark.

The Auscultoscope or Phonendoscope vs. the Binaural Stethoscope, by Charles Denison, A. M., M. D., Denver, Colo.

Einige Gesichtspunkte, Betreffend die Aetiologie und Behandlung der Tabes, von Professor E. A. Homén, Helsingfors.

Die Centrifuge bei Ohrenleiden, von Stanislaus von Stein, Director der Klinik, mit 43 Abbildungen, 1 Bd., 1 Heft.

The City Board of Health and the Drug Business, from the *New York Medical Journal*, January 22, 1898.

On Affections of the Musical Faculty in Cerebral Diseases, by William W. Ireland, M. D., Scotland.

Reflexes in Psychiatry, by Dr. D. Clark, Medical Superintendent, Hospital for Insane, Toronto.

A Case of Syringomyelia With Trunk Anaesthesia, by Hugh T. Patrick, M. D., Chicago, Ill.

The Coroner's Inquest a Medieval Relic, by Samuel W. Abbott, M. D., of Boston, Mass.

Word-Blindness and Visual Memory. By James Hinshelwood, M.A., M.D., Glasgow.

The Question of Pelvic Support, by Joseph Eastman, M. D., Indianapolis, Ind.

A Brief For The Cigarette, by W. H. Garrison, Esq., New York.

Notes on Suicide, by C. C. Mapes, Louisville, Ky.

THE

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ORIGINAL CONTRIBUTIONS.

HYSTERIA IN CHILDREN.*

By DR. L. BRUNS.

Neurologist, Hanover; Physician-in-Chief of the In-door Department of the Childrens' Hospital.

THERE is no doubt that those morbid conditions, which we to-day call "hysterical," have existed as long as hysteria—and may be quite as old as mankind itself—and have afflicted not only adults but children also. From the Middle Ages we have the historical evidence that hysteria was occasionally epidemic in a large number of children. I will refer merely to the dancing mania (*chorea magna Germanorum*), the childrens' crusades, as well as to the legend of the rat-catcher of Hamelin. It was reserved for a later period and in the principal affair the very latest (Charcot, Richer) to recognize that these manifestations were essentially types of hysteria. Still the manifest medical fact, that the well-known morbid symptoms generally described since the earliest times as hysteria are observed occasionally, at least, in childhood, is of centuries existence. Gilles

*From Sammlung Zwangloser Abhandlungen aus dem Gebiete der Nerven—und Geisteskrankheiten. Bd. I, Heft 5 u. 6.

Translated by Dr. W. Alfred McCorn, Assistant Physician at McLean Hospital, Mass.; late of the Illinois Eastern Hospital; Member of the New York Medico-Legal Society, etc.

Carolus Lepois (1617), as the first to recognize that hysteria is not so very rare in children, wrote the following proposition: "*Enim vero experientiae fide multe puellulae vivunt hystericis tentatae symptomatibus ante duodecim aetatis annum.*" Pertinent observations were made in the previous century by Hoffman (1733) and Raulin (1759). That they were given so little consideration was due, as Gilles de la Tourette in his great work on hysteria wrote, to two reasons especially, but which are closely related. First, because until recently and even yet the erroneous opinion is held that hysteria, as its name implies, always depends on the sexual functions of women; then of course it could not occur until these were developed, not before puberty. Second, naturally for the same reason, the gravest doubts were entertained as to the occurrence of hysteria in the male sex, although Galen and much later Sydenham (1757) had observed it in men; the development of the doctrine of hysteria in children must have been especially retarded by this last reason, for in childhood, as we will see, hysteria of the male sex is especially frequent. It was reserved for Briquet (1859), supported by exhaustive and incontestable material, to definitely shatter both these false opinions; he asserts that according to his experience the disease is developed before the twelfth year in about one-fifth of the cases, and that about 5 per cent. of them are males. It may be stated incidentally that the frequency of hysteria in the male sex has been more recognized of late; Briquet's percentage is much too small; Bodenstein has given ten per cent.; recent French authors assume that to two or three hysterical women there is one hysterical man; among the poorer classes the proportion is perhaps even more unfavorable to men (Marie). As to the proportion of the sexes in hysteria in children, it will be more fully discussed below. Briquet's statements as to the frequency of hysteria in children has met with considerable opposition, although in 1874 such an experienced author as Jolly accepted his figures, and subsequently French, as well as German, literature contained valuable contributions in this respect, particularly as to the frequency of hysteria in chil-

dren, fully supporting Briquet's statements. (Panise, Cloppat, Goldspiegel, Schäfer, Jolly, Fürstner, Smidt, Seeligmüller). It must be conceded at least that to the greater part of the medical profession, among general practitioners especially, hysteria in children in its varied forms of manifestation is not as well known by far as this disease deserves, simply from its relative frequency, being to many a complete *terra incognita*. It is very certain to me, from my not small experience, that the figures given by Briquet as to the proportion of hysteria in children to that in adults, are not excessive, but less than the actual truth. Naturally in the recognized frequency of hysteria in general Briquet's proportion yields a very large sum for hysteria in children. Besides the censure, if it is such, as to the slight knowledge or slight consideration of hysteria in children, as Gilles de la Tourette has correctly stated, refers not only to general practitioners, but to specialists in childrens' diseases as well. To be sure Guinon was right when he admitted that his countrymen, Simon and Grancher, were celebrated exceptions in this respect; of the German specialists in childrens' diseases, I will only cite Henoch in his excellent description of this phase of the pathology of children; but on the contrary, state that in the large text-book by Gerhard (1880) on childrens' diseases, hysteria is not given a single chapter, and that Soltmann in the differential diagnosis of epilepsy says in a few words that hysteria in children is very rare.* It is by no means this relative frequency of hysteria in children which alone makes its acquaintance valuable to the general practitioner; there is scarcely another disease whose early recognition, which almost always leads to rapid recovery, can yield the physician so much respect, whose misjudgment, so much depreciation of his authority, in short, so great an exposure to ridicule in many cases as hysteria in children. Who has seen the parents' puzzled faces when they have been given back their child cured directly after the first examination (at least of the manifest symptoms of the disease), which has been considered for months by

*Recentlv Sachs (Nervous Diseases of Children) says hysteria is very rare in adults.

them and the physician as seriously ill and perhaps even as incurable, will no longer be in doubt as to the damage to the previous physician in reputation by every such case, and it will be impossible to prevent this by the strictest ethics; on the other hand, it is known that such a cure, from the parents' great joy over this scarcely hoped for success, will raise and spread the physician's renown far wider and more quickly than many other cases on which he may have spent far more care, thought and astuteness. But if one physician's failure always resulted in another's benefit, it would not be so bad. But almost as frequently as the parents consult the professor or specialist, when the family physician fails, they go to the quack or resort to miracles acknowledged by the church or wholly apocrypal, and mysterious means. And these two facts in cases of hysteria have to record their most common and striking success, should at least lead physicians to know and recognize the frequency of the cure of hysteria by faith.* "If there were no hysteria there would be no miraculous cures and no quacks," Strümpell says. But how much less the physician's reputation suffers in such cases by the success of holy relics and miracle-working images than by the quack, does not need to be especially mentioned. "*Tua res agitur,*" may here be said to the general practitioner; become acquainted with hysteria, then in many cases it will be cured ere the patients or their relatives think of seeking the aid of another physician or quack.

If then only with some experience will it be possible to ascribe great practical significance to the further diffusion of knowledge of hysteria in children among physicians, it is to be asked at least: does hysteria infantilis present such points of difference in regard to symptomatology, prognosis and treatment from that in adults that its special description is profitable and justified? This question can only be answered in the affirmative; in all the provinces specially mentioned essential characteristics of hysteria in children may be cited. Details will be gone into more fully later,

*Still, as I will show below, the employment of miraculous cures cannot always be prevented.

here I will only outline these peculiarities. Hysteria in children very often occurs in the so-called monosymptomatic form, which the French describe as *forme fruste*. Only a single morbid manifestation—sometimes a paralysis, a contracture, a circumscribed spasm exists—again nothing is found. Very often, if not always, the so-called hysterical stigmata, so important in differential diagnosis, are absent—the sensorial and sensory disorders, *i. e.*, the anaesthesias and the convulsion-inducing (hysterogenic) and convulsion-allaying (hystero-frenatoric) points, the latter of which must first be cultivated in adults. As pronounced seizures, particular those similar to epilepsy, are rare in hysteria in children, the distinction between interparoxysmal conditions and the seizures, so evident in severe hysteria in adults, is also wanting. But then the special and often only symptom of a case of hysteria in a child is so very marked, so apparent that it is often recognized immediately by the expert as hysterical; it is almost always a matter of symptoms which the French have named *hysteria massiva* (palsies, contractures, monospasms, etc.); the disease type is almost never so vague and tedious as is so common to the interparoxysmal state of hysteria in adult women; in this respect hysteria in children is very similar to that in men. On the whole psychical symptoms are rare, except it be a matter of whining and peevish children. Still the distinction in prognostic and therapeutic respects are finally the most important—yet I must defer this to the special part.

In hysteria in adults, owing to the polymorphism of the symptoms, it is a very difficult matter to systematically describe the symptomatology of hysteria. Still it is well known that Charcot succeeded in bringing some order into this chaos, essentially by accurately describing the constant symptoms of hysteria, the so-called stigmata in the sensory areas. I have already stated that these stigmata are very often absent in hysteria in children, that there is often but a single symptom, and it depends on recognizing this as hysterical. Hence the possibility of a complete systematic description of all the symptoms of hysteria infantilis is out of the question. We must therefore limit ourselves to

describing as accurately as possible the most common and important symptoms and symptom complex. As hysteria in its choice of forms of manifestation is quite, if not wholly unlimited—as we will see—for no case is exactly like another, naturally it is impossible to enumerate them all here; in general I will give no statistics of the case of hysteria in children I have seen; but remark that my material in this respect was quite large from the beginning of my special practice and has especially increased since I undertook the management of the in-door department of our children's hospital.

We will first consider the paralytic conditions. Flaccid palsies and those with contractures occur in hysteria in children. Whether the one or the other form is the most frequent is a question; personally I have seen more contractures;* others with wide experience (Charcot, Ziehen) claim for hysteria in general a greater frequency of flaccid palsies. It may be a matter of paraplegia of the legs, more rarely of the arms, of hemiplegia, very often of monoplegia or only of palsy of single portions of the limbs; paralysis of a single muscle is very rare. Paralysis of all four extremities is very rare in hysteria.

The face is uninvolved in the majority of the cases of hysterical hemiplegia; contracture of the same or opposite side of the face will often be observed, which also affects the tongue; in very rare cases the face is paralyzed. But both, like monoplegia, are rare in children. Hysterical pareses, similar to spinal and root palsies (paraplegia and monoplegia), are never arranged exactly like these, *i. e.*, according to the grouping of the several muscle centres and their branches in the cord and roots, but it is a matter of a paralysis of a whole limb or its several portions according to the peripheral segmentation, hence of the arm, forearm, hand. Contrary to the condition in organic cerebral palsies

*The term paralysis with contracture is to be taken *cum grano salis* in hysteria. If a limb is completely contracted it is perfectly functionless and in this sense paralyzed, but a real muscular paralysis is as little inferred as in ankylosis of the joints; it is the opposite of organic contractures, which are always combined with paresis at least. Still hysterical contractures quite often arise from flaccid hysterical palsies and so real paresis with contractures may exist in hysteria.

the shoulder and hip joints are more often paralyzed than the hand and foot in hysterical palsies. In rare cases slight muscular atrophy occurs, *e. g.*, in the hands, but the reaction of degeneration is always absent.

The contractures of hysteria in children, as well as those in adults, occasionally affect every joint—frequently all the joints of one extremity. I have often observed rigid paraplegia of the legs with contracture in knee, hip and ankle joints, usually in extension, many times in flexion also. But hysterical contracture, contrary to paralysis, is especially prone to affect the ends of the limbs; it causes flexed contractures in the hands and fingers; in the feet complicated positions often occur—I saw varo-calcaneous twice from contracture of the tibialis anticus, valgo-equinus from that of the peroneus. Contracture of the trunk muscles is more rare, still I saw it once with curvature of the cervical vertebrae, which simulated a tubercular affection of the parts; conditions resembling torticollis are more common. The contracture usually affects all the muscles moving the rigid limb, or all the flexors or all the extensors; but when the joint is moved principally by one muscle this may be the only one contracted; I cite as such a case a rigid contracture of a pronator teres with fixed pronation of the forearm.

Hysterical contractures—also those of childhood, and, as it seems to me, these especially—have two great characteristics. First they are very intense, so that in many cases in children it is scarcely possible to reduce them, what is always readily accomplished in organic cerebral contracture, almost always in the spinal. Of course they relax during sleep; yet I must admit that I have never succeeded in demonstrating it, for these children often sleep so lightly that when an attempt is made to examine the limb they immediately awake and the contracture is present again. It may likewise return before the child is fully awake from a chloroform narcosis. Besides hysterical contractures in children, as in adults, are painful as a rule, in so far at least that any attempt to reduce them causes the little patients severe pain. As the pains are usually located in the joints,

these cases have often been regarded as articular neuralgia with consecutive contracture.

The tendon reflexes in hysteria in children are less often exaggerated than in adults. In the latter a patellar clonus, a transference of the reflex to the other leg, to the trunk and upper extremities, is somewhat common, as well as a sort of Achilles clonus, but in which there is almost always a feeling of voluntary muscular action and therefore is not usually so lasting as the true clonus in organic diseases. Of course all this occurs in older children especially, also without palsies or contractures. As far as the patellar reflex is especially concerned it is usually perfectly normal in children, *e. g.*, in flaccid paralysis of the legs; and also in contracture, when it cannot be brought out owing to the contracture, it is not usually so active as it would be in a corresponding organic contracture.

Manifest disorders of sensation in the paralyzed or contracted limbs are very much rarer in children than in adults. In contracture of the foot joints I twice found the same foot anaesthetic; in one of these cases, a twelve year old boy, the visual field of the same side was contracted. In a flaccid monoplegia of the right arm I found anaesthesia of this arm in typical areas, as stated by Charcot, as the paralysis of the shoulder yielded—the anaesthesia was still found in the forearm and hand.

The onset of the palsies and contractures in children is usually rapid, almost apoplectiform; it is often impossible to say anything definite in regard to them. The paralysis is quite often found in the morning on awaking.

Very much more common in children than real palsies and contractures are those disorders of the lower extremities, which are known as *astasia* and *abasia*. The characteristic of these disorders—which are ten times as frequent at least in hysteria in children as in adults—is that the muscles of the legs, while lying and sitting, can perform all their functions powerfully and precisely, then in no way paralyzed, but are unable to execute any co-ordinated muscular action, which is essential in walking or standing. It is as if the patient had completely forgotten how to stand or

walk, but this alone. In an especially characteristic case cited by Charcot, the patient could not stand or walk, yet could swim, and it is very probable that the ability to ride a bicycle is retained in astasia-abasia. Naturally this hysterical symptom is evident to the expert. Trouble has been taken to formulate various types or varieties of astasia and abasia; but if every variety occurring should be individually cited there would be no end to the classification. It suffices to differentiate a simple paralytic, a spastic and a tremulous or choreiform variety of astasia-abasia. The first variety embraces those patients who simply fall when placed on their feet; in the third form there is a gradually increasing tremor or shaking, which finally results in their falling. Ataxic disorders also occur, they being of the cerebellar type. Astasia-abasia may be chronic or paroxysmal; in one of my cases of the latter sort it occurred every few months with violent pains. I once saw a case of abasia which could be very aptly described as "stuttering of the legs." The disorder occurred only in beginning a movement; it was as though the patient must make the greatest effort to raise a leg; he then took a few steps without advancing; then suddenly, almost explosively, locomotion followed; when the gait was perfectly normal until the patient stopped, had to turn or step off or on the sidewalk, when it had to be all gone through with again. In this case the same disorder affected all the other muscles; *e. g.*, those of the arms in all their functions, the muscles of speech, etc.

Aphonia, which often occurs in childhood, is one of the hysterical palsies. It differs in no way from the same disorder in adults. It is characteristic that in complete aphonia the patient will cough out loud, occasionally sing even. Mutism is also quite common in childhood.* Here the aphonia is combined with total aphasia—words cannot be whispered; but mutism is readily differentiated from true organic aphasia in that here every rudiment of speech is

*According to Heredotus, a son of Croesus, who was dumb for years, had hysterica mutism: but in the invasion of Sardinia when a Persian tried to kill his father, the fright restored his speech.

wanting, as well as that organic aphasia is almost never combined with aphonia; but it may be possible to read and write readily. I have often observed hysterical stuttering in children. It was characterized by the functional disorder being present only in beginning an utterance; it cost the patient considerable effort to enunciate the first syllable, or he repeated it several times; after he was once started he could talk for sometime without any trouble; could count about fifty or read a whole page. If he was interrupted or attempted to begin after a pause the same difficulty recurred. Disorder of the proper use of respiration was entirely absent. In some cases of other observers the stuttering would only occur with certain letters; a disorder similar to stuttering is also observed in writing. Hysterical stuttering often precedes mutism or continues for sometime after it is cured.

Hysterical *blepherospasm* is especially frequent in childhood—later in life it is rare. As a rule it follows reflex closure of the eyes from inflammation or foreign bodies. It is often characterized, but not always by any means, by the well-known pressure points, especially the supraorbital, whose compression may interrupt a spasm—it is here a matter of a true spasmo-frenatoric point. *Blepharospasmus hystericus* is often a very stubborn trouble. It is not wholly complete, the spasm being confined more to the upper part of the *orbicularis oculi* and frontal muscle, so that it may simulate a ptosis; I saw this in a twelve year old girl, in whom this false diagnosis was made, but who quickly recovered.

We now come to symptoms of real motor irritation, among which we must include the contractures and perhaps the stutterings also. A peculiar tremor occurring in various forms in hysterical adults is rare in children, if I may judge by my experience; still Jolly has often seen it in children. Choreic motions are common. In hysterical children a very marked restlessness of the limbs is often seen, but cannot really be ascribed to chorea, for they seem more like movements of embarrassment. But pronounced chorea is by no means rare. I am of the impression that a large

number of the so-called recurrent choreas are a form of hysteria, especially those which are due to psychical agencies, as after fright; in the first attack a true, perhaps rheumatic chorea has occurred, but the recurrence is a hysterical imitation of the first attack. Under appropriate treatment these cases often recover very quickly; of course I do not deny that there is a true recurrent chorea. According to Ziehen hysterical chorea may also occur as hemi-chorea. Doubtless a part of the cases described as multiple paramyoclonus (Friedreich) belong to hysteria. I recently observed in an older boy a perfectly typical case, of whose relationship to hysteria the symptoms left no doubt. Other cases of this sort have many closer relations to epilepsy or very generally to psychical degeneration. Henoch's *chorea electrica* takes a similar intermediate position—it is here a matter of spontaneous twitchings, especially of the muscles of the shoulders and trunk; it occurs almost solely in children. A rapid cure might be indicative of the relationship of these cases to hysteria, while the cases depending on degeneration are incurable.

In children I have often observed conditions of the face very similar to the *tic convulsif;* in other cases it is more a matter of slow grimacing, the muscles of the mouth being especially implicated. I once saw paroxysmal convulsive movements of the lower jaw in a six year old boy. They had followed a slap on the ear; could be produced by pressure behind the ears and interrupted by pressure on the abdomen. I once saw a rotatory tic of the head in a seven year old boy of hysterical parentage; it was very similar to convulsions observed in small children of rachetic tendency, yet in the latter cases the almost constant nystagmus was wanting. The so-called accessorius spasms are quite frequent in children of a hysterical nature. A case of clonic movements of the fingers in a girl might suggest athetosis duplex; still the movements were too uniformly clonic, and also the psychical disorders almost always present in bilateral athetosis, the spastic paresis of the legs and movements in the muscles of the trunk, neck and face, were absent. Finally the rapid cure was indicative of hysteria.

In hysteria in children I have seen more often than other forms of chronic anomalies of motion those, which Charcot has described as as *chorea rhythmica*. It is here a matter of regularly repeated movements, which affect all the limbs and often in a certain adaptive or sport-like manner (forging, rowing, swimming, riding a bicycle—chorea malleatoria, natatoria, etc.). Twice, once in a boy and once in a girl, I saw rhythmical movements of salutation by the chest and head. In the boy it occurred first as he lay down, later when standing and sitting.

I have known unilateral seizures in children resembling Jacksonian epilepsy, still less often by direct observation than from statements of the parents. I am now treating a thirteen year old girl, who, according to her mother's statement, has paroxysmal twitchings in the right arm and leg, but in whom I can readily and quickly produce temporary clonic twitchings on both sides by tapping the triceps, quadriceps and Achilles tendons. This ready production of seizures by these manipulations—which are readily induced by repeatedly tapping the patellar tendon—is such that hysterical seizures can almost always be observed at the consultation hour, what is quite characteristic of paroxysmal hysterical symptoms, and is indicative of the more general hysterical seizures, the so-called hystero-epilepsy. On the whole these grand attacks are rare in children—and if they occur the patients are quite near to puberty. I have often seen in twelve and thirteen year old girls conditions very similar to Charcot's description or the *grand mal hysterique*, in whom, besides the peculiar, wholly irregular convulsive movements, the stages of clownism (arc-de cercle, grands mouvements) and the exalted or terrifying delirium with attitudes *passionelle* are not lacking. These and the more rudimentary seizures with more isolated convulsive movements are then in no way different from similar conditions in adults; the delirium almost constantly present during the seizure is especially characteristic; if the seizures are seen, as is usually possible, there can generally be no doubt as to their nature. Paralysis or contracture quite often follows

the seizures; I once saw contracture of the fingers, once mutism and later stuttering following an attack.

It is more common that the hysterical attacks of children are wholly psychical than those similar to epilepsy. Henoch mentions a number of such cases in which the *attaques* consist of sudden, violent, usually terrifying, delirium or only of cries and ravings with more or less clear or clouded consciousness. It may also occur, and I now have under observation such a case in a sixteen year old boy, but still of a wholly childish habit, that attacks of *pavor nocturnus* are hysterically imitated. In my case true attacks of this sort had existed previously, of which the parents had often told the child. I once saw pronounced attacks of somnambulism in an eleven year old girl. They had followed a slight trauma. The girl suddenly closed her eyes, a mild convulsive tremor passed through her body; with her eyes closed she then arose, scratched on the paper a few times and went through with a spectacular performance, in which the school and teacher once played a part, another time her dolls. In the meantime danced and sang, or talked like her little niece who was just learning to speak. These attacks have existed more than six months.

Pronounced conditions of *chorea magna*, which are simply hysterical, are rare on the whole, but more common in children than in adults. Eight years ago two sisters were brought to me from Lüneburg for treatment, who had kept the whole neighborhood in excitement for months. Daily they had numberless *attaques* similar to syncope, which were followed by wild motor impulses, they turned somersaults, "tried to climb up the walls," jumped and ran. They were likewise delirious and had made several prophesies so that the people of the vicinity regarded them as sort of wonders. The younger sister had a flexed contracture of the right leg for months and came to the clinic on a crutch. I at once straightened the leg, ordered her to walk, which she did, and burned the crutch in her presence. She had another attack in the hospital, but no more after I separated the children—they were both soon discharged recovered. I saw another case turn somersaults in bed,

who also had complete astasia and abasia, which is very characteristic.

I saw a single case of typical obsession in the country. It was a boy from whom a "strange voice" spoke. This "strange voice" had its special aversions, particularly for the physician; when he came it manifested the wildest excitement, uttered insults and caused convulsive movements of the body. The patient had his parents wholly in his power—a common occurrence in hysteria in children; they must give him a specially darkened room and bring him his food. They would not listen to the child's removal from home; but it occurred later and the boy quickly recovered. It is characteristic of all the grand attacks of hysteria mentioned in children, as well as in adults, that the consciousness is almost never extinct; this is the most plainly shown by suggestions being obeyed during the seizure. The convulsive conditions of hysteria, particularly the rhythmical convulsions and chorea magna often occur epidemically. These are much rarer to-day than in previous centuries, but still occur, particularly in schools and seminaries; further in isolated villages when the first cases have especially astonished the people (see above). R. Wichmann has recently reported such an epidemic in Wildbad; they have also been observed quite often after hysterical experiments and abuse of hypnotism.

Hysterical coughing and tachypnoea belong to the convulsive conditions. I have seen both in girls who were past puberty. The cough was characterized by its not coming from the larynx, but evidently being made wholly by the mouth. In tachypnoea sixty to eighty respirations per minute at least occurred, without any real dyspnoea.

That the disorders of cutaneous sensibility, at least in pronounced form, are rare on the whole in hysterical children, I have already stated. All the previously described manifestations most commonly occur in children without anæsthesia. In the many cases of astasia-abasia I have seen, I have never found disorders of sensation. Of course this is not a universal rule and I have above cited cases of contracture and flaccid palsy with typical hysterical

anæsthesia. I have never found complete hemianæsthesia; but once in a two year old girl who had Barlow's disease there was total anaesthesia and analgesia with the exception of the head. As there was pseudo-paresis of the legs and tenderness of the cervical vertebrae, caries of the cervical vertebrae was diagnosed. The anaesthesia disappeared as the general condition improved. Then if disorders of cutaneous sensation exist, they are grouped in hysteria in children similarly to the palsies, corresponding to the segments of the limbs and are in no way similar to the arrangement of the organic sensory disorders.

True neuralgias are much more frequent in adult hysterics than in children. Only once have I seen, in a twelve year old boy, violent paroxysms of pain in the left supraorbital region—of course not sharply limited to this area. They occurred twice daily at very definite times—malaria was excluded. The paroxysms of pain finally degenerated into severe hysterical seizures of the character of chorea magna, when he wildly threw himself about, cried, etc., etc. I had to discharge the patient uncured at the parents' request.

Hysterical articular neuralgia is also very common in childhood. Hence Strümpell is perfectly right in saying that the majority of the cases of so-called articular neuralgia are painful contractures, but still I have seen many cases in which true contractures or palsies were wholly absent and only articular hyperasthesia existed; one (a six year old boy), where, very characteristically, passive movements of the leg and gentle contact over the hip joint were painful, while the boy performed active movements in bed, but cried violently when he was requested to stand or walk. In a short time the simple command to walk effected a perfect cure, yet the child was very prone to relapses.

I once observed intense headache combined with vomiting and anorexia in an eleven year old girl. For a long time I was in doubt whether there was a tumor *cerebri* or not.

Of the disorders of the senses those of sight are the most common. After blepharospasm, amblyopia and amaurosis particularly often exist for a time in the affected eye;

these functional disorders are usually of a hysterical nature; in very small children it may be a matter of relearning to see; I once saw contracted visual field on the side of a contracted and anaesthetic foot; but will admit that I have only rarely made measurements with the perimeter. Hysterical deafness, especially deafmutism, is observed in childhood—a case of deafmutism, which occurred in a twelve year old boy after a trauma, recovered quickly as he fell into the water and was in danger of drowning. I have never found disorders of taste and smell in hysterical children; but I have rarely looked for them.

Dysphagia from spasmodic closure of the esophagus is often one of the disorders of the digestive organs, but this hysterical symptom is most common in adults. Whereas I have often seen persistent anorexia and refusal of food in girls between seven and nine. Transfer to a hospital and possibly once feeding with the tube suffice for a cure. One of these cases was complicated with abasia. Another I have mentioned; the anorexia was combined with vomiting and headache. The parents were not to be induced to bring the child to the children's hospital and so the merely hysterical child finally starved to death. Such cases are often observed. I have never seen vomiting alone in hysterical children; particularly haematemesis. Obstinate constipation, which adult hysterics often simulate by passing the stools secretly, is very rare in hysterical children.

The bladder disorder typical of hysteria is retention of the urine; *incontinentia urinae* is very rare. But the first form rarely occurs in childhood, for the sphincter vesicae is not usually strong enough to withstand the intense desire to urinate.

Of the so-called trophic disorders of hysteria I have seen oedema twice in children. Once in a flexed contracture of the fingers, the oedema on the back of the hand was a sequel; it occurs very similarly as in tetany in children, particularly of the feet, if the spasm lasts for some time. In the second case it was a matter of paresis of the legs. I believe in the first case that the oedema was simply mechanical, due to the compression of the recurrent

blood-vessels owing to the contracture of the hand and fingers. In the second case I have thought of ascribing the oedema to the paralysis—still this was not quite clear, for it was a matter of paresis simply.

"Trophic" disorders of the skin, which are finally unmasked as the result of self-mutilations, burns in particular, I have often seen in girls—servants, factory girls—who were no longer children, yet had just passed childhood. One case corresponded exactly to Kaposi's *herpes zoster gangrenosus hystericus;* we finally caught the patient burning herself with the head-nurse's curling iron. This also includes the case of a ten year old girl who cut off her hair and then said she had been assaulted and robbed of her hair. The case had long occupied the attention of the authorities. A mania for operative treatment of painful hysterical affections is common to children. A fourteen year old girl, just menstruating, had her right mamma amputated for hysterical mastodynia; fourteen days later the pains occurred in the other breast and she urged to have this also removed. A short faradisation effected a cure.

A few words as to the psychical condition of hysterical children, besides the severe seizures already described. I cannot cite definite characteristics. Many of the hysterical children are spoiled, rude, often peevish, but the opposite may be found—children who are well behaved. In many cases a psychical abnormality is not to be observed. Many children are very intelligent; still I am of the impression that this is by no means the rule, as is claimed; I have had a number of decided imbeciles among my hysterical children. One thing is peculiar: if a hysterical child is quickly cured, *e. g.*, of an astasia-abasia, by a simple command; "You *can* walk," the chiid always makes a face as though it had been grievously wronged, tears usually occur. Joy over the successful cure is usually noticed after some time and expressions of gratitude are manifested. The same feeling has many times been observed after "cure" of adult hysterics. On the whole then, just as in adult hysterics, the psychical condition is very unstable; a universal type of the "hysterical character" cannot be given.

Occurence of Hysteria in Children. Sex, Age, Race. Country and City. Parents' Social Position.

In my experience hysteria in childhood occurs just as often in boys as in girls. Of the last thirteen hysterics admitted to my department, six were boys and seven girls. It seems to me the nearer they are to puberty the greater is the number of girls, so that the proportion is gradually developed, which I have given above as to hysteria in the male and female sex.

Hysteria in children is the most frequent between the seventh year and puberty, or about fourteen. But puberty, *i. e.*, menstruation, in girls often occurs much earlier—about eleven—again much later; and in boys the age of puberty varies greatly. After real sexual maturity—boys as well as girls may still continue to be children psychically for a long time and hysteria depends on the psyche especially. In my casuistics I have therefore wholly refrained from stating in the definite case whether puberty had occurred or not, but cited several cases of girls with developed sexual functions while the childish habit was still evident psychically.

Hysteria in children is also by no means rare prior to the sixth or seventh year. A number of my cases of astasia-abasia, mutism, chorea minor and magna, of facial spasms, *e. g.*, of the jaw muscles, are between four and six years of age. The case of hysterical anaesthesia in Barlow's disease was not two years of age. Oppenheim has certainly seen such cases at this early age. French authors speak of hysteria in nursing infants—still these observations are to be taken with allowance.

The opinion that hysteria in children, like nervousness in general, is a sign of the ultra-civilization of our times, is counter to the experience of myself and others, for the severe "massive" cases of hysteria—palsies and contractures, astasia-abasia, especially typical cases of chorea magna are observed proportionately more often in children from the country—and particularly from lonesome, isolated villages, than in those from large cities. This has also been noted

by early observers of hysteria adultorum. Epidemics of hysteria still occur in isolated mountain villages; *e. g.*, in the Savoy and Italian Alps; then in secluded seminaries, previously in cloisters especially (Morzines 1861, Verzignis 1878, cited by Richter "L'Hystero-epilepsy"). Therefore as such epidemics of hysteria are much rarer to-day and not so extensive it may be concluded that advancing civilization has at least lessened the severer cases or hysteria.

Prominent authors, *e. g.*, Charcot and Oppenheim, have ascribed to the Hebrew race a great proneness to nervous diseases. In my experience with hysteria in children I have often seen it in those of Jewish extraction; much oftener than corresponds to the proportion between the Jewish and Christian population; a very essential prevalence of the Hebrew element, as is claimed for other diseases, *e. g.*, diabetis mellitus, I have not been able to demonstrate as to hysteria in children.

Finally with respect to the parents' social position, I have met with hysteria in children of poor and wealthy, educated and ignorant families; should differences appear, they are, that poverty and, as has been shown, defective education favor the occurrence of hysteria.

ETIOLOGY.

All authors speak of hereditary nervous taint as the chief cause of hysteria, many as the real fundamental cause, who regard all other causal factors as merely exciting, as agents, provocateurs (Charcot, Guinon). There can be no doubt as to the grave importance of this factor and it is more common in hysteria occurring in children than that in adults. Direct homologous transmission is very common; hysterical parents have hysterical children; but a so-called transformed heredity is just as common—other nervous or mental diseases having occurred in the parents or blood relatives—the children are hysterical. Nevertheless I am of the opinion that, owing to the influence of the Charcot school, pure heredity in nervous diseases, and in hysteria especially, has been ascribed somewhat too great importance. In this respect not only are all organic and

functional nervous and mental diseases to be included, but as Charcot thinks, also the rheumatic diathesis in its broadest sense and perhaps even tuberculosis (Ziehen); so if we go back to the grandparents and into the side lines to the parents' brothers and sisters, there is scarcely a person, especially not in large families, in whom hereditary nervous taint could not be found. Then it is not necessary to spend much trouble on the anamnesis, for this taint could be quietly assumed *a priori*. In my opinion the important theory of heredity of nervous troubles cannot be discredited; and that is certainly unnecessary, for when only cases of pronounced, accumulated taint are cited as evidence, drastic examples enough will always be found in hysteria in children especially.

Still it happens in hysteria in children that the proof of the pure influence of heredity may be obscured by several other factors, which are directly connected with it, as when the parents, or one of them at least, have hysterical seizures, I mean their example excites imitation, and the defective, often weak, especially unstable training. Literature cites a large number of instances of the origin of true hysterical seizures in childhood by the direct imitation of the disease manifestations observed in the parents, which so intensely excite them; then inversely hysteria in children may cause convulsions in the mother, as I have many times observed. The training of children, who are so unfortunate as to have hysterical parents, is therefore usually defective, for the parents themselves are not very well reared; during the parents' severe seizures, which often render necessary their removal from home for a time, supervision and guidance of the children are often entirely wanting. These factors do not alone refer to parents as to their children; I know of several cases where hysterical principals of seminaries have wrought ravages by exciting hysteria among their pupils, and also the imitation, *e. g.*, of epileptic convulsions in entire strangers or the ataxia of an intoxicated person, has been observed in hysterical children. Finally school and seminary epidemics depend on imitation.

As the children's training generally depends more on

the mother than on the father—for to-day in almost all stations in life the husband's business demands all his time and keeps him away from his family—so for this reason it is natural that the hysteria of the mother is of greater importance than that of the father, to say nothing of the ever greater frequency of hysteria in the female sex. It may be especially injurious when the imagination, so active in children and especially in those of hereditary taint, is more excited by this education and excessively by various stories and tales of horror; I would by no means entirely close the world of fairy tales to children, but would advise caution in hereditary taint. I have already stated that children must be kept away from hypnotic exhibitions, for they especially excite the imagination through their mystery.

Example and imitation, as well as the defective training, are psychical causes and it must be emphatically stated that, just as in adults so in children at least, the exciting factors of the hysterical manifestations on more careful inspection are essentially psychical; a circumstance, which in a disease in itself psychical, depending on concepts, as hysteria does, is only natural. In children fright and fear are to be considered such factors. Convulsive conditions, *e. g.*, chorea, often appear immediately after a fright —and the children are especially timid. In dreams the important part in exciting the hysteria is the fright usually. Fear occupies the second place. I have often observed severe hysteria in children whose fathers were drunkards and often abused the mother and children when intoxicated. Here the ill-treatment and the efforts to escape it are to be considered. It was definitely proven in one case that a child, who was treated for a slight injury in the hospital, had hysterical paralysis as it was about to be discharged, for it feared the whip of its drunken father on its return home. Also the fear of punishment in school, of the teacher's discipline for simple laziness often has this effect; in these cases it is then found that the hysterical seizures occur when the child must get up and go to school. I have seen, *e. g.*, conditions similar to unilateral convulsions and *pavor*

nocturnus. Many times the hysterical symptoms, *e. g.*, the delirium in children, appear definitely in the efforts to play a trick on persons disagreeable to them, *e. g.*, strict governesses and teachers, and this quite often occurs with weak parents; *e. g.*, in my case of somnambulism mentioned above, when the governess was made responsible for the child getting up too late and not in time for school. (See the case of the girl who cut off her hair.) Therefore it is well in hysteria in children to try to get the greatest possible knowledge of their past life; their virtues and faults, likes and dislikes, the family's habits, especially as to the kind of parents and brothers and sisters.

In the occurrence of hysteria after physical diseases careful inspection will show that it is not usually a simple nexus of cause and effect but that a psychical factor also exists. Very often the hysterical manifestation is merely a permanency of a previous organic symptom due to the nervous diathesis. Thus from a traumatic tenderness of a joint, which of course was impaired functionally, a hysterical articular neuralgia with contracture is developed, or the same hysterical contracture exists in several joints, which had been previously affected with acute rheumatism; also from a general debility after febrile disease, the hysterical astasia and abasia—what I, as well as Jolly, have often seen; from a slight hoarseness in consequence of laryngitis, a hysterical aphonia; from a convulsive closure of the eyelid owing to a corneal affection, hysterical blepharospasm. In other cases the hysteria imitates previous organic diseases; in this relation I have above cited cases of hysterical chorea and hysterical *pavor nocturnus;* hysterical paraplegias are not rare in children, who have been previously paralyzed for a time owing to vertebral caries.

Naturally the physical diseases may directly prepare the ground for hysteria by the general debility; many organic diseases seem to have this special effect; a combination of hysterical and organic symptoms are most often observed in multiple sclerosis; still it must be stated that the first attacks of true sclerosis are often not to be clinically differentiated from hysterical manifestations. The chronic intox-

ications, which play a great etiological role in hysteria adultorum—like alcohol, lead, nicotine, bisulphide of carbon, etc., are not operative in children; perhaps alcohol the most.

Of course anyone who has seen many cases of hysteria will be able to cite several in which the most careful investigation can discover no sufficient reasons for the disease.

False diagnoses as to hysteria are well-known to occur in two ways. First a severe organic trouble—particularly that of the nervous system, may be erroneously considered hysteria; second, such an organic trouble of the nervous system, stomach, larynx, lungs, etc., may be presumed, while hysteria exists. In adults the first error is by far the most common—it is also serious and will never be pardoned by the relatives; it is often scarcely excusable, particularly in those cases of which Gowers says that the only reason for the diagnosis of "hysteria" has been the female sex of the patient. In children, inversely, hysteria is usually the last to be thought of, what naturally is due to the fact that knowledge of the occurrence of hysteria in children and of its forms of manifestation is not common among physicians. If the parents are worried by the diagnosis of a severe and incurable disease, the disease symptoms in the child will thus be more obstinate and resistive, while with a correct diagnosis they would have been quickly cured. This error is naturally less disastrous—but it is fatal, as I have shown to the physician's reputation, who has made the mistake.

To guard against errors in diagnosis as far as possible is here, as everywhere in medicine, the chief affair, regardless of the general knowledge of the occurrence and symptomatology of hysteria in children, the most careful examination of every case and especially the most scrupulous consideration of the anamnesis, the primary causes, which are, as we have seen, especially characteristic of hysteria in children. Likewise it embraces an extensive knowledge of all the other domains of medicine, particularly neuropathology, but also of internal medicine, surgery, ophthalmology, etc., for it is a matter in diagnosis chiefly of excluding, with the greatest possible certainty, all organic foundation of the existing symptoms in the special case. To-day knowledge

embracing all these special domains cannot be expected of any one physician, so in questionable cases it is always necessary that the attending physician consult the proper specialist. If the fundamental conditions for the possibility of a correct diagnosis are afforded the observer, he will succeed in the majority of cases of hysteria; or if, as we have seen, many cases of hysteria appear simular to organic diseases, in a certain, often high degree, they may "simulate," still they have, as shown, almost all peculiarities in the special grouping and kind of symptoms, which do not occur in the organic disease concerned and which generally leave the expert observer in no doubt as to their nature. Of course that is not always so—in many cases it may happen that the most skilled and careful observer makes a false diagnosis in hysteria. The cases are especially difficult where symptoms of organic nervous and hysterical nature are mingled in a very confusing manner, as, *e. g.*, in multiple sclerosis. I always call to mind a case of cysticercus in the fourth ventricle, in which the changes in the symptoms, the apparent psychical nature of the trouble, the absence of all manifestations referring with certainty to an organic trouble, led me to hold to the diagnosis of hysteria after many careful examinations, until the patient suddenly died and the necropsy taught me better. Even to-day I do not know how I could have avoided this diagnostic error. As stated, the most important for the diagnosis will always be an extensive general and special experience and the careful observation of the individual case. It is especially necessary to think at least of the possibility of hysteria infantilis in every case under consideration. Still for hysteria in children, as for hysteria in general, there are of course a few general diagnostic points, of which some are so characteristic that they alone must render obvious the presumption of the hysterical nature of the trouble.

An essential enlightenment in this respect is afforded by the most possibly exact definition as to what will be called a hysterical symptom, which furnishes the true key for the correct comprehension of the hysterical types. I am quite with Möbius, who claims all the hysterical symp-

toms to be psychically conditioned and proceeding from "voluntary concepts," who then, in other words, will regard in general only such symptoms as hysterical, which could be produced voluntarily and then in other cases could be simulated. To cite a few examples to explain my views: a paralysis of sight may be hysterical in one or another way, but not as a unilateral paralysis of the abducens with corresponding double vision, or a pupillary paralysis; or a bilateral paralysis of the epiglotis as to phonation is possible in hysteria, but in general not the typical type of a unilateral paralysis of the recurrens. These examples may be still increased (many other isolated muscular palsies, *e. g.*, of the *supinator longus*, *rectus abdominis*, etc., can hardly occur in hysteria and the theory is applicable in a certain degree to the symptoms of irritation and convulsive attacks, as well as for the vomiting and vesical disorders in hysteria), but in general it is clear that according to this explanation those symptoms cannot occur in uncomplicated hysteria, which, if I may be permitted the expression, bear the sign of their organic nature on their forehead; to cite a few; vesical paralysis with cystitis and pyelitis, decubitus, muscular atrophy with the reaction of degeneration, absence of the patellar reflex, pupillary fixity and optic atrophy, etc. And thus naturally very much is gained for the complete comprehension and especially for the diagnosis of hysteria. However there are several important objections to this theory. The first is the strongest. There are cases of hysteria with symptoms described by a number of good and incontestable observers, which do not fit into the above scheme, as, *e. g.*, cases of unilateral, non-associated paralysis of the eye muscles and pupils, then those of "hysterical" fever, of hysterical muscular disorders, atrophies, and of the skin—oedema and gangrenous processes. In these cases of course the possibility of producing such disorders by the will is out of the question. I am, as said, far from doubting the hysterical nature of all the "symptoms of hysteria" cited that are in opposition to the above hypothesis, but yet it must be admitted and is granted by all authors, also by those who recognize that the symptoms are very

doubtful as to their nature and, if I may say so, the most apocryphal of the great neurosis of hysteria. Only a few words are needed to prove that. In regard to oedema and muscular atrophy their origin may be very easily explained. The oedema in a contracture is very well explained mechanically, as I have already stated—as well as that which occu ed, *e.g.*, in a hand with flaccid, but complete, hysterical paralysis of the arm. Under such circumstances this symptom would not then be directly hysterical, but simply a mechanical consequence of a true hysterical symptom. Besides we know that vasomotor symptoms depend especially on concepts; I refer to the blush of shame, the sweat of anxiety, palpitation of the heart—many persons can voluntarily induce these symptoms by concepts. Therefore it is not impossible that a circumscribed oedema may be produced in hysteria in this purely psychical manner; still the tendency to hives, urticaria factitia, is one of the most common symptoms of hysteria, as of nervousness in general.

The muscular atrophy occurring in hysteria is in general an atrophy of inactivity. Individual cases are known in which the muscle has wasted rapidly, but in these the reaction of degeneration is absent, in so far as can be judged or it is not, *e. g.*, a matter of complications. Here then, at least in most cases, a simple direct hysterical symptom cannot be spoken of.

The following statements are to be taken account of as to the so-called palsies of the eye muscles, fever and trophic disorders of the skin in hysteria. In the "palsies" of the external eye muscles it is a matter in most cases of contracture of the antagonists of the apparently paralyzed muscles. In some other cases also included it is, *e.g.*, subsequently proven by the autopsy that the ophthalmoplegia had an anatomical basis. Difference in the size of the pupils is then of value only when non-reaction to light exists on one or both sides—in such cases, especially if the difference is great, a simulation from the use of atropine is always to be considered, as I personally found in one case. In the so-called hysterical fever a complication should always be looked for, which is not always so readily

excluded—further simulation is often directly proven (manipulation of the thermometer). The latter, the possibility of simulation—is especially true of the "trophic" disorders of the skin—as above stated. I could clinically prove simulation in one case, in several others the disorders (burns) immediately disappeared when I charged the patient of producing them herself. It is certainly not wholly accidental that these doubtful symptoms of hysteria, the three last mentioned in particular, rarely occur in children. In short great caution is essential in all these last mentioned "symptoms" of hysteria.

The second objection to the above hypothesis is more theoretical. It has often been said to me that it is false to decree, to say officially, such and such a symptom may occur in hysteria; such and such, not. Such an objection would certainly be justified if it was attempted in a disease clearly definable clinically and anatomically—like multiple sclerosis. It was once said; disorders of sensation do not occur and vesical disorders are rare. Further experience has shown the correctness of these claims. But it is entirely different in hysteria. The question "what is hysteria?" is not yet decided, in spite of all acumen, however near perhaps many explanations come to the truth; when the laity ask me this question I generally answer it evasively, that I do not know, but would be very thankful to them for an explanation. Whereas experts in general are agreed, when it is a matter of certain symptoms: that is hysteria or hysterical. In this state of affairs it is decidedly proper to make a certain arrangement of the views I have advanced as to the nature of the symptoms of hysteria, so that we may recognize, for the present at least, very numerous symptoms as occurring in pure hysteria, while others do not. This theory holds good at least for the most important and best recognized symptoms of hysteria—and the above explanation does that, which then recognizes only voluntarily produced symptoms and their mechanical consequences as possible in hysteria, as is universally admitted—so it is the proof that comes near the truth at least; and second, its value in practice is firmly grounded, for, if held to, it may be

said of a large number of manifestations from the first—that can and that cannot be hysterical. Owing to their practically diagnostic importance I have gone quite deeply into these more theoretical matters. If then in those cases which are included in hysteria by general sanction, symptoms occur, like the questionable ones above mentioned, particularly palsies of the eye muscles, fever, severe nutritive disorders of the skin, it is well to consider whether they are not organic complications or simulated. (In palsies of the eye muscles, asthenic bulbar palsies are to be thought of especially, which are often confounded with hysteria). If it is thought possible to exclude both, then there is nothing averse to these symptoms being considered purely hysterical, if such symptoms should be observed on a purely hysterical foundation, then the above hypothesis as to the nature of the hysterical manifestations can no longer be entertained unconditionally. But in my opinion we are not yet that far—and until then this theory can be of especially good service in diagnosis.*

Besides these principal and hence so important factors for diagnosis—in hysteria all of them cannot possibly be enumerated, as this disease always presents, so to speak, new symptom types, for whose recognition it is essential to possess the correct key, the correct formula—but in hysteria there is a number of others, in part very characteristic points of view which, if only considered, often aid in a correct diagnosis. Many cases of disease permit, *e. g.*, an immediate diagnosis, as they present their signs of recognition so plainly that for persons of average information, there can be no doubt as to its nature, *e. g.*, in a characteristic hysterical cough, in tachypnoea, in the above case of "stuttering" abasia, in chorea rhythmica and magna, in obsession.

The symptoms are characterized by their great intensity or rather by the very excessive reaction of the patient to his morbid sensations; or by what the French call mas-

*Besides many cases are described whereby special exercise isolated functions of several muscles were attained, which do not absolutely obey the will, like unilateral movements of the vocal cords, individual movements of the platysma, etc. Perhaps isolated movements of single external eye muscles may be practiced. In such cases naturally their hystertca[1] paralysis is possible—but such exceptions cannot be taken account of.

sivity. So, *e.g.*, in hysterical pains the patients act as though they would go crazy, as the laity say. They cry and rave constantly in the wildest manner, throw themselves about the bed, while patients with the same symptoms of an organic nature lie perfectly still. True organic pains may of course assume this character in simultaneous hysteria. I was once called to a tabetic woman with severe lacerating pains, whose excessive manifestations were peculiar; a few weeks later I saw her in a typical hysterical seizure. By massivity is understood that the hysterical contractures far exceed in force the organic, usually not the least joint movement being possible; further that hysterical pareses are rare, usually complete palsies occur; or that in hysterical mutism, contrary to what occurs in organic aphasia, every rudiment of speech and even the possibility of producing a sound is absent.

By other peculiarities the hysterical symptoms very beautifully betray their psychical origin. I have partly indicated that above in the symptomatology. The formula for these conditions is the best stated as hysteria in its symptoms and especially in their grouping is emancipated completely from well-known anatomical relations and conditions. That is very charactertstic of palsies. They may be paraplegic, monoplegic or hemiplegic—its disorders of motion and sensation are never so characteristically varied, but grouped uniformly for the individual case, as we know of the organic lesions of the individual segments of the spinal cord, the plexes, the peripheral nerves or finally the brain. Hysteria does not tend to such extremely complicated conditions; for it, as for the naive concepts in general, does not rely upon anatomical relations—each limb in motion and sensation is a whole, which in more or less independent parts are at variance in the individual segments of the limb. Therefore hysterical paralysis either affects a whole extremity or only a part of it, which is sharply separated from that not paralyzed by the joint—in this way arise palsies of the hand alone, of the hand and forearm, or, what is more characteristic, only movements of the shoulder with implication of the hand and forearm. This is

true of the leg also. But in hysteria there is never the grouping as, *e. g.*, in Erb's plexus paralysis, which singles out individual muscles of the shoulder, arm and forearm from all the others. If in paralysis there are disorders of sensation they certainly do not coincide with the paralyzed muscles, but with the segments of the extremity paralyzed; in a paralysis of the hand it only is anaesthetic, in that of the hand and forearm both these parts, while in organic palsies—especially those arising from the plexus or spinal cord—the disorders of sensation in the arm are arranged in streaks parallel to its long axis—in hysteria the anaesthetic areas are always transverse to the long axis—they encircle the limb—what is comprehensible in their relations to the palsies of individual segments. It is for the same reasons, the absolute emancipation from the anatomical structure and the arrangement of the disorders according to naive concepts independent of anatomy, that in hysterical hemiplegia the face is not usually affected, that hysterical disorders of sight do not present hemianopic defects of the visual field (very rare exceptions are described), but occur in unilateral amaurosis or concentric contraction; that in hysterical manifestations in the extremities following a head trauma are on the same side as the lesion and not decussated, as well as many others.

Still almost characteristic, but at any rate, referring directly to the psychical origin is that condition of hysterical paralysis to which Babinski has applied the term *paralyse hysterique systematique*. The term should indicate that in this form of hysterical paralysis, not as in the organic, in the great majority of cases, not every function of this or that paralyzed muscle is disordered, but only certain functions. The most characteristic in this respect is astasia-abasia, where only standing and walking are impossible, while all the leg movements can be executed when lying down. Babinski has seen the opposite, paralysis of the leg muscles while lying down, their functions well performed in standing and walking. This also includes a facial paralysis in the purely voluntary movements only, while, *e.g.*, the emotions, in laughing and crying, are retained, a condition

which inversely occurs in organic lesions of the *thalmus opticus*. Besides hysterical stuttering occurs only in certain conditions, as with certain letters only or always in beginning to speak, but not to sing. This last hysterical symptom complex plainly shows its hysterical origin; of many of them it may be said that hysteria causes paralyses not so much of certain muscles in their totality, especially not individual muscles, but paralyses of certain functions, it paralyzes standing and walking, it paralyzes speech, but not singing, etc., etc. This also includes certain hysterical palsies of the eye muscles, which are not those of individual muscles, but usually ptoses—a ptosis on one side, above or below, which in pure forms are very rare in organic conditions.

Last, but not least, to be considered is the great psychical susceptibility of the hysterical symptoms. This is closely related, as we see in the etiology, to the causes of the trouble and its individual symptoms especially are almost always purely psychical. I have already stated how characteristic it is that the particularly striking symptoms of hysteria are almost always capable of being elicited at the consultation; if the patients hesitate it is only necessary to remark how important it is for an opinion that the seizure be witnessed. This wish in hysteria is almost an order. The interruption of the seizures—be it by means of hysterofrenatoric points—is included; it is well if these points are to be demonstrated, to remark previously that by pressure in this or that region of the body the convulsions will cease. Finally the rapid cure of a hysterical symptom in a purely psychical way or by means of suggestive treatment is of course an evidence of this psychical susceptibility; still I will state that the occurrence of death is not always a reason for abandoning the diagnosis of "hysteria"; it has often occurred from long neglected anorexia (I have cited an instance), several times in a hysterical seizure.

If all the characteristic conditions of hysteria cited are kept in mind a correct diagnosis will be immediately or soon made in the majority of cases and I have fully discussed all these things owing to their diagnostic importance,

although they are in no way peculiar to hysteria in children, but are true of hysteria in general. Still I will say here that it is not always as easy as it might seem from the preceding statements. Hysteria, this great imitator, *cette grande maladie simulatrice*, as the French say, often attains such an adeptness in imitation that it may deceive for a time the experienced. I will cite an instance from my own practice. An eleven year old girl was brought to me with the following symptoms: marked, apparently fixed curvature of the cervical vertebrae, flaccid paralysis of the right arm, oedema of the right hand, paresis of the legs. The diagnosis of cervical caries was made by different physicians. I was also of this opinion at first. I found that the tendon reflexes of the legs were not exaggerated; further, that the right arm was anaesthetic in typical hysterical areas; then that I could straighten the head with some effort, but that it always returned to the same faulty position; finally when I raised the arm I did not bear its whole weight, but the patient assisted somewhat. When thus far I again raised the arm and said to the child in the loudest possible voice, as I let go the arm: "Now the arm stays up," and it did. The other hysterical remnants were soon relieved. It must be confessed that here the imitation of an organic lesion was very good. It was perfect in a case of hysterical pseudo-meningitis in an adult, in whom stiffness of the neck, retarded pulse, hebitude and apparent word-deafness existed; further in a child in whom constant headache with vomiting and anorexia and mild convulsive seizures had long indicated a brain tumor. Of course choked discs were wanting. Hysterical contractures after articular rheumatism were naturally considered rheumatic ankylosis in another case. It is of course the most difficult when hysterical and organic symptoms are combined. In infantile hemiplegia I saw a foot contracted to *talipes equinus*, as is quite common. The contracture was remarkable only for its tenderness and its subsequent course showed it to be of a hysterical nature. In another case a rigid hysterical paraplegia followed an old and fully recovered spinal caries. I saw true hysterical seizures in a young man with nephritis, which of course

were considered uremic so long as I had only the mother's description of them. In syringomyelia I saw, in an adult, hysterical anaesthesia, which was transferred to the other side by the use of a magnet. It is the most difficult in multiple sclerosis, which often begins at puberty—here on the one hand hysterical symptoms, *e. g.*, anaesthesia, occur; on the other, the often so temporary clinical manifestations of sclerosis indicated by no certain organic symptom, *e. g.*, the transient visual disorders and palsies, are easily confused with hysteria. In short there are many snares for even the experienced and careful observer; I will say once more that in children especially hysteria is always to be thought of, also in cases where an organic lesion is certainly present, but when all the symptoms do not correspond to it. The error of considering an organic lesion hysterical, which is frequent in adults, is rare on the whole in children, as stated, and of course it must be avoided.

After these remarks I need go no further into the differential diagnosis of hysteria. As hysteria may imitate to a certain degree almost all organic and functional diseases of the nervous system and many others, gastric, intestinal, pulmonary and laryngeal troubles, it would take us too far. The most essential of the several symptom complexes has been mentioned, so that if the general points of view already given are kept in mind an error will very rarely occur. Still I might mention one other. Besides hysteria, and often associated with it in childhood, is hyphchondriasis; it is much rarer than hysteria. It is essential to consider that the prognosis of hypochondria is materially different from that of hysteria.

It is also necessary to say a few words as to simulation in hysteria and especially as to hysteria in children. Many authors, particularly the French, will not admit it, which is decidedly wrong. My position as to this question is based on many preceding details, as my statements also plainly show how hard it is to draw the boundary between true hysterical symptoms and more or less conscious simulation. According to the definition above given the majority of hysterical symptoms can be produced voluntarily and so

are also simulable. As to the kind and time of occurrence of individual hysterical symptoms more or less conscious psychical factors are to be etiologically taken account of in children—fear of punishment, pure laziness, the efforts to put something upon strict teachers and tutors. Finally it may not be at all rare to directly prove conscious deception —in self-mutilation, dilatation of the pupils, in so-called hysterical fever. But with the exception of these actually proven occurrences, it must be admitted, if the matter is to be regarded without bias, that it is inherent in the hysterical character to exaggerate, not to be strictly careful about the truth, to add to actually present disorders those consciously simulated and it all cannot be ascribed to leaks of memory, dream fancies or the hysterics' credulity as to what others tell them, as *Gilles de la Tourette* has tried to show. Of children it is to be especially added that lying is very common to them—they often lie until they see the truth will serve them better—and then their imagination is very active—it is only necessary to observe how much children enter into the spirit of their games, which they live almost more than they play—then the masterly scenes they often relate, *e. g.*, in the somnambulistic state, are not strange and so it must be said how easily truth and fiction may here be blended.

But if I must admit the occurrence of true simulation in hysteria in children, I will say first, that conscious simulation is decidedly rare, and second, that the things, which are generally consciously simulated; *e. g.*, the self-mutilations, when they occur in childhood, where the fear of injury is usually very great, emphatically prove that these efforts at simulation and fraud must be due to a morbid psychical condition. If the symptom is feigned—the morbid basis, the hysteria then exists no less. Beware especially of denying the disease when one or several manifestations are known to be feigned.

As the preceding statements show, hysteria in children presents no essential diagnostic differences from that in adults, while it is entirely different as to prognosis. The prognosis of hysteria in children is special, and it may be

said on the whole that its difference from hysteria adultorum is decidedly more satisfactory. The prognosis is better, on the whole very good; and that it is not only true of the individual symptoms, which in proper recognition of the disease, can be quickly cured in the majority of cases—for instance the impotency of all treatment of the hysterotraumatic symptoms in adults—but of the disease hysteria itself I may especially emphasize. I know now of a number of adults in whom I have successfully treated the severe hysterical manifestations in childhood and who never had hysterical symptoms subsequently, and so since that time can no longer be called hysterical. It seems very essential for this result, to energetically eradicate the first hysterical manifestations and then to keep the patient under observation for some time to prevent relapses. This better prognosis *quoad sanationem completam*, which is then permanent and makes the treatment of hysteria in children a very pleasant task, would represent an essential difference between this disease in adults and children, if it should be confirmed, as every one knows the adult hysteric is, and ever remains, hysterical.

The better prospects of treatment of the individual symptoms of hysteria in children in comparison to that in adults depends of course entirely on psychical causes. As the cure of hysterical symptoms is always effected psychically, this is due to the fact that children are very much more susceptible psychically than adults, that they can be more easily impressed, intimidated than the latter—that they are more credulous and on the whole more accustomed to obeying, particularly strangers and in strange surroundings. Of course in the individual case all these conditions vary in different degrees and the prognosis is more or less good. So it is that in children of seven to fourteen years the favorable prognosis of the hysterical symptoms gradually lessens with advancing age, because the psychical susceptibility essential for its relief is always harder to attain, owing to the lessened respect for authority and the greater psychical independence. As the circumstance last mentioned —the development of a real character with lessened sus-

ceptibility—usually occurs earlier in city children than in those from the country, the prognosis of the hysterical symptoms under like conditions is generally better for the country than for the city child. Before the sixth year the prognosis is again somewhat bad, as small children are less susceptible, still more so than adults. For exactly the same purely psychical reasons the strange physician is usually more successful than the well-known "Uncle Doctor." Naturally all those psychical influences favorable to the prognosis act very especially on a child that is brought for the relief of its trouble to an entirely strange place and then put in a hospital under a strange physician, whose special renown has come to its ears, and in consequence of the still greater aggregation of all these favorable factors the most rapid success has been attained in children, not too old, who are brought to the hospital in the city from the country.

The length of time the disease symptoms have existed has a bearing on the prognosis, and further whether many fruitless efforts for its cure have been made. The longer a hysterical symptom has existed the more resistive it becomes and many vain attempts to relieve it naturally lessens the child's faith in the efficacy of medical art and subsequently hinder the physician's success in its treatment, especially when all conceivable remedies have been employed. The more virginal and unsophisticated the case is the better its prognosis, if it is correctly recognized and then properly treated; the chief affair is its early recognition.

It is better to prevent diseases, and efforts in this direction usually have more prospect of success than their cure. This fundamental law of scientific medicine is of course true of all diseases whose causes are known in a measure and so of hysteria. But if we more closely inspect the above detailed etiological factors, especially of hysteria in childhood, we will readily perceive that our prophylactic efforts are confined to very narrow limits. For, as we have seen, the most essential and real fundamental cause of hysteria is hereditary taint, so to radically combat this disease hereditary taint must be gotten rid of, in other words,

the possibility of propagation must be taken from every nervous individual and, owing to the frequency of direct homogeneous transmission, from every hysteric especially. It must be evident for many reasons that measures for this purpose are utopian; under such conditions, owing to the frequency of nervous disorders, the world would soon be depopulated. This could only be attained perhaps by the greatest possible diffusion of a rational insight into the serious importance of hereditary taint to the posterity, that when the question of marriage of a nervous individual arises care at least should be taken that the other party is not nervous, lessening as much as possible the danger from both parents, the so-called convergent taint. The fatal attraction which nervous individuals have for each other makes this danger much greater and it is often very little regarded; for the laity either do not know the importance of hereditary taint or disregard it from purely external reasons—and the physician is almost never consulted on this occasion and if he is by one of the parties and perhaps can present reasons for not consummating the marriage, his professional secrecy will interpose obstacles.

Then with very rare exceptions, the physician's prophylactic measures for hysteria in children cannot begin with the parents, but with the children themselves and they will be children in whom one or both parents are hysterical. We must then take account of and deal with the serious nervous taint as a fact no longer to be gotten rid of. Here the question will arise, are prophylactic measures to be instituted in the latent stage of these cases in which, as we assume, hysteria now exists, and so prevent manifest outbreaks of the disease? In general these questions, which I will try to answer the best I can, are often put to the physician, the physician of these families, for he knows the parents' diseases, often from their earliest childhood, he has followed the physical and mental development of their children, he also knows the family's circumstances the best and in special cases what measures can be carried out. He naturally is the first to be consulted by the parents, who in this respect are concerned about their children, and this

to-day occurs still more often among the better classes; while a specialist is rarely consulted about these matters. I have incontestably shown under etiology that for the relief of hysterical symptoms in children with hereditary taint and directly united with it, are two factors to be especially taken account of: 1, The direct imitation of the hysterical manifestations occurring in the parents and frightening the child; 2, the defective training of the child by its hysterical parents. It is very natural to think of radically removing both these pernicious factors by taking the training and education of hereditarily tainted children from the hysterical parents and placing them as early as possible in the care of strangers, then in boarding-schools, cloisters or similar institutions. This is proposed for boys by *Gilles de la Tourette* about their eighth year. It seems to me if much is to be really attained this age is too late, as in many cases of hysteria in children the disease has occurred before this time; second, I believe this procedure may be successful in France and England perhaps, where the training of children away from home is more in vogue, but hardly in Germany, especially not in those cases where it is a matter purely of prophylaxis, a real outbreak of the disease not having occurred and the parents do not regard the affair as serious enough for such radical measures. Still if this measure was actually adopted in many cases these boarding-schools would become real infection centers of hysteria in children. The girls are still unprovided for, whom *Gilles de la Tourette* would not place in large institutions, but in whom the danger in itself is still greater, for their training usually depends most on the seriously afflicted mother.

Therefore for all these reasons such radical measures will usually have to be abandoned and we can be well satisfied if a part of those so desirable are attained, that the children of such a marriage are placed under healthy tutors or governesses, who relieve the sick parents of the duty of their training. Under such circumstances the parents' residence must of course be so arranged that it is possible to prevent the children witnessing their parents' severe seizures and so eliminate the serious danger of imitation. In

many cases and particularly in girls *Gilles de la Tourette's* proposal can be carried out by placing the child with its governess among healthy relatives, of course not too near the sick parents.

As to what is essential in regard to training can be gathered from what has already been said as to etiology. On the whole the training must be to a purpose—strict with all gentleness. Whenever possible avoid everything that will greatly excite the imagination and above all things in little girls beware of teaching them various little artifices, as so often happens, which flatter the vanity of the parents and the children, and must be displayed before adults, who publicly applaud while they secretly censure. The children are to be protected as much as possible from injuries and fright, owing to the great importance of these factors in the production of hysterical manifestations—but they are not to be drawn from all contact with the world. When injuries occur, after being convinced of their harmlessness, it is well to pay as little attention to them as possible and to cause the child to use the parts injured as soon as possible. The same conduct applies to convalescence from internal, *i. e.*, febrile diseases; exercise the greatest care, but do not display extreme solicitude. It is also pernicious to keep the child home from school for any trifling complaint; it often leads to efforts at simulation. In all this a strange governess succeeds much better than the solicitous, anxious and psychopathic parents.

With respect to education it should, if possible, always be acquired in a public school. The children are thus brought into contact with healthy children, which is so very essential, for they pay little attention to them and treat them like healthy children. They are thus accustomed to some kicks and cuffs and to healthy, if somewhat wild, games, especially out of doors, and so their bodies are strengthened and hardened. All physical exercise is good; only it should not be carried too far, as so readily happens to-day, thus unnecessarily exciting ambitious efforts, which often leads to excesses. A real mental over-exertion rarely occurs in school now. I believe Charcot is right that chil-

dren cannot be overburdened; yet it is well not to torment them with music lessons, particularly when they have no talent of this sort.

In girls the time for menstruation demands great care —the greatest possible mental and physical quiet. The children are often wholly unprepared for the first appearance of the menses and thus considerably excited, which would have been wholly avoided had the mother or governess told them of it as something that must occur naturally and about which the child need not be alarmed.

If we now review all that has been mentioned as important in prophylaxis, we will see that on the whole it is a matter of quite ordinary affairs, but owing to the many pernicious agencies arising in so many ways, which may affect the hereditarily tainted child, it is only rarely possible to meet them all. But it is still more serious that all the precautions mentioned are possible only in the so-called upper classes. Even in the greater part of those families belonging to the so-called middle class, the requirement of educating the children by a stranger is impossible and the conditions of the home are not such usually that the children can be separated from their parents at the times of their severe symptoms. But how much less possible is it among the poor, where hysterical conditions in the parents are so common, where everything transpires in one room, where perhaps hunger and want are also directly associated, where the child is in constant fear of the inebriate father and is often ill treated by him. Here we must be resigned, for circumstances are the stronger; but it is no longer strange why hysteria in children, especially the severe and very early type, is uncommonly frequent under such external conditions, in a word, with poverty and misery.

In many cases then our prophylactic efforts for the suppression of hysteria in children will fail, but still more often they will not be employed. We then have the fully developed, manifest disease and must see what can be done to relieve it. In adult hysterics, like the disease itself, the treatment may be divided into two parts: the treatment of hysteria in general, *des stat hysterique*, and that of the indi-

vidual symptoms, the palsies, seizures, etc. We have seen that in children the differentiation of these two stages is usually absent, that at times other than the manifest or rather severe symptoms, signs of hysteria are not to be discovered, the so-called stigmata, especially sensorial and sensory anæsthesia are absent. Consequently there is no need of a special treatment of these intervals in children, or at least it can only be a matter of such regulations as I have given above for prophylaxis. After the relief of the manifest hysterical symptoms a general treatment is proper for a time of which more will be said later.

We then assume it as a matter with which we have practically most often to do, of such manifest symptoms of hysterical *infantilis* as have already been described, a paralysis, a contracture, an astasia-abasia, an aphonia, or of paroxysmal symptoms, spasm, chorea magna, etc. The proper treatment will be described in the simplest and likewise most thorough manner, after we have seen what the historical course of these cases generally is. The general practitioner, the family physician, is of course usually first to be consulted. We will first assume that he recognizes the symptoms to be hysterical. He will then be able to cure the child under favorable conditions, especially if he prevents the first stage of the disease—it is here then particularly, "*principis obsta*"—and employs the proper remedies to be more fully described later. But he will generally have a hard battle in hysteria in children, even with a full knowledge and a correct diagnosis of the special case. The reasons in part have already been given in the diagnosis. In general the "Uncle Doctor," whom the child has known always, and in the most favorable cases as a good and helpful friend, therefore being somewhat familiar and accustomed to him, does not possess the requisite authority over the child, especially is not afraid, if the mutual relations are proper, which is important in the treatment of hysteria, where psychical influence is of prime importance. There are exceptions of course. I know of a large number of physicians, who possess a perfect knowledge of the condition combined with the requisite authority and discipline in their family

practice, which therefore makes them often and early successful in the treatment of hysteria in children. But the exceptions confirm the rule. The reasons for failure, so common under these circumstances, are not confined to the personality of the physician, but that the child remains in its usual surroundings with its parents and that the injurious influences emanating from the parents themselves nervous are very materiaily increased when the child is ill, particularly when, as is so common in hysteria, it is a matter of morbid conditions, which frighten the parents and cause them the greatest solicitude. The parents in their anxiety and worry cannot do enough for their presumably very sick child and they thus very materially aggravate the seizures regardless of those quite common cases where they do not directly oppose the physician's efforts or at least do not carry out his orders, if the child energetically rebels. And the little hysterical patients are not usually lacking in energetic resistance. Who could expect calm objectivity of the mother when her child has convulsions or enacts the scenes of *chorea magna* or somnambulism, cannot swallow or vomits all its food. We can be well satisfied if the hysterical mother does not have severe seizures herself under such circumstances. But all this will only make the disease the more obstinate and serious in the child. In short, if the family physician administers the proper remedies under such circumstances they will fail; if he tries others they will be of just as little use. If he fully comprehends the situation he will not make other efforts very long after the first have failed; he knows these will be of as little benefit, and that fruitless efforts in treatment tend to make the prognosis more grave. He will then advise consulting another physician, whom he knows to have special experience in this matter and perhaps advocate—as we will see is perfectly proper—giving the child up wholly to this physician or of sending it to the hospital. But the family physician will fail in this advice, although perfectly correct, and in the last especially for the parents do not believe it necessary and it is very hard to convince them it is best to send the child

to a hospital* and so under certain circumstances may result in the postponement of consulting a specialist for some time. But they finally yield, especially after being so advised by others.

Naturally it is still worse for the child if the first physician does not recognize the hysterical nature of the trouble —a condition very common of hysteria in children—but still the course of the case is generally the same, only the periods are somewhat longer. The parents' extreme anxiety is intensified by the physician's unnecessary worry due to the false diagnosis, and especially in those cases, which are so common, where hysterical contractures and articular neuralgias are falsely diagnosed as a surgical trouble, when the hysterical conditions are made extremely obstinate and resistive by the application of extension or a plaster cast. And so it goes for a time, usually longer than when a correct diagnosis was made at first—but the parents finally decide, either on the advice of the family physician, or unknown to him—to consult another physician. But they may take a circuitous route before they reach the neurologist, to whom they are not always directly sent in these cases; particularly in those above mentioned the parents will naturally go to a surgeon first. If the nature of the trouble is then recognized or only presumed, but not cured, the cases finally reach the professor or specialist in nervous diseases.

From this general description of the course of hysteria in children in the early stages of the disease, which are not imaginary, but taken from a large number of actual cases (it is not true of every case), the following proposition is given for the general practitioner and the family physician in particular. Hysteria in children on the whole is not a grateful task for the family physician even in a correct diagnosis at first and with the employment of the proper remedies, for perhaps nowhere else does he fail so often. Therefore it is well, when the first efforts fail, not to continue the treatment with other remedies too long, for these

*For the same reasons the family physician usually acts wisely in advising them to let him treat the child in a hospital, where of course success would be much more easily attained.

will probably fail and thus the prognosis is on the whole made more grave. It is best that the family physician propose consulting a colleague as early as possible in whose knowledge and special experience he has full confidence—it is well that this physician's reputation and his success in similar troubles reach the ears of the parents of the sick child. It is better perhaps, as shown, for the family physician to leave to the consultant the detailed statement of the measures to be pursued—especially the necessity of separating the child from its parents, as the prospect of this may possibly deter the parents from consenting to the proposed consultation. And at this place the quack always lurks.

The prospect of the first physician's success is very unfavorable when his diagnosis is wrong. Then of course definite advice cannot be given; I can only repeat, it is well in all cases in children to think of hysteria and it is to-day a shrewd move on the part of every physician if he is not perfectly sure, to advise the patient or his parents to consult another physician as early as possible. In the suspicion of speaking unauthorizedly *pro domo*, or in the presumption I may not succeed in this advice after my statements as above and what are to follow—I could in this case produce sufficient incontestable evidence of its correctness.

Now if the hysterical child has been taken to the consultant, a specialist in nervous diseases, who confirms the previous diagnosis, or makes it, if not made: what must now be done for the cure of the little patient? The answer must be with all positiveness: In all cases of hysteria in children, when the conditions permit it, and as a hinderance I know of only one that is a combination of hysteria with a serious organic affection probably terminating fatally in a short time (in curable physical troubles, whose cure of course can be waited for, if it does not take too long), the physician must especially urge that the child be separated from its parents and sent to a hospital, preferably one for children. It is one of the greatest services of Charcot, so celebrated, that he has placed in the clearest light the prin-

cipal significance of isolation* in hysteria and particularly hysteria in children, and that he has again and again pointed to the importance of this measure. The necessity of isolating the patient has before been clear to many who had to treat hysteria frequently, but Charcot's emphatic evidence has made it the common property of all experienced in this affection. Nevertheless it is not to be believed that the specialist will readily succeed in carrying out this measure, which he must advocate as the first and most important means for the child's cure. The parents will stubbornly resist being separated from their child, it must always be kept in mind how often in these cases the parents are hysterical—and many times it is impossible to convince them. It has often been my experience that the parents left me without following my advice to put the child into a hospital, that they remained away for weeks and in the meantime probably resorted to all possible procedures, even to the consultation of empirics, and then when all had failed, they consented to separation from their child. But the consulting physician will usually be more successful in this matter than the family physician. The parents go to him as a special authority, whom they know, either through their physician or other patients, to have a wide experience in such matters and having often been successful they are willing to listen to his advice; if they are intelligent enough they can see by the way the experienced physician treats the little patient and the way he takes hold of the matter that his reputation in such affections is not unfounded; and that increases their confidence still more; further the specialist advises isolation in this case, the same as others; if the parents have come some distance with the child, possibly undergone the fatigue of a long journey, they are overse to repeating it and think that if it is as A says, it must be as B says. In a word they conclude to leave the child wholly and completely to the physician consulted—the more readily when this physician is connected with a hospital and particularly one for children.

*The term isolation here means only: separation from relatives, not as with alienists; separation from other patients, *i. e.*, seclusion.

Of the parents' objections to the child's isolation, and especially of those in good circumstances, the following are the hardest to meet: "Why," they ask, "cannot the measures considered so essential by the physician be carried out just as well, and even better at home? We can do everything for our child, we can provide special attendance, give it a special room, and we can look after it better and more carefully than the best hospital!" In the majority of cases we must agree with *Gilles de la Tourette* that it is best not to discuss this matter too fully with them. It is best to refer simply to the usual experience that a cure without isolation is not attainable, or only with great difficulty, while by this means it is usually readily affected. Only very intelligent and very sensible parents, and these are not usually parents of hysterical children, can be told the plain truth in this matter and shown the effect of isolation, as we explain it to ourselves.

That hysteria in children cannot be cured at home does not depend usually so much on the want of care, but more often to too much and especially to too solicitous and anxious attention. If the child notices that its parents are anxious, it also becomes anxious and so its trouble is aggravated; or if a tendency to deception exists the child seems to be pleased or at least interested in frequently repeating the symptoms which often worry the parents. (I do not infer that these things are fully conscious to the child.) All this cannot be avoided at home, for the requisite calm objectivity is not to be expected of the mother. It is at once entirely different in the hospital. If the physician is certain of his diagnosis and the nurses are properly disciplined in the treatment of these cases—both then witness the child's symptoms with perfect calmness—so it cannot be anything serious, and this calmness is immediately imparted to the child. But it is still more important that the child knows from the first that in the hospital it is wholly in the physician's hands, that complete recovery is promised, and that before this is accomplished a return home is not to be thought of; that it is now no longer possible to secure the aid of the weak parents against the

physician's energetic measures, which was previously afforded him often enough. Still in the hospital it will often happen that the children try to gain a slight concession from the physician; but if he has the necessary energy it is usually noted how soon the children perceive that they can gain nothing and that only unconditional submission will help them. To all the favorable circumstances is still to be added the fact that the physician is a stranger to the child, that it does not know what to expect of him, that it fears him to a certain degree, and on the other hand it has heard from its parents that this physician has always cured children like itself; then the entirely new and strange surroundings, perhaps even the removal from the quiet of the country to a large strange city, so it is readily perceived that by isolation alone the ground on which we will work, the child's mind, has been favorably prepared for the elimination of the morbid ideas generating the hysterical symptoms. These are usually the reasons for the favorable effect of isolation in hysteria in children and so would I explain it to parents whom I deemed intelligent enough to comprehend the matter.

Two very important questions are still to be settled. First, in advising isolation it is well not to go so far as to say that without it a cure is impossible. It is not of course —for I have often seen cases get well in which, for various reasons, isolation was dispensed with, many times the cure occurs quickly, after the physician has advised isolation, because the little patient was afraid of being taken to the hospital.

Second: It is best not to permit any half-way measures. The parents often try to get the specialist to treat the child at home, especially if he lives in the same place. In general it is to be refused; his reputation will only be injured; for under such circumstances no more will usually be accomplished than by the family physician. If this concession has to be made, tell the parents at least that the treatment is merely an experiment, of which little success is to be expected.

That the separation of the parents and the child is not an objective cruelty, as unreasonable parents often think,

but of great benefit to the child, as will be seen from what has been said. But subjectively at least in a children's hospital the child does not long feel that these measures are hard, particularly if it is quickly cured. Almost always children soon become accustomed to the hospital and many are very happy there. But the separation from relatives must be complete. The physician should only permit visits when he has succeeded. The admission of a relative or servant the child knows, for its special care in the hospital, must not be permitted under any circumstance. Correspondence between parents and children should be forbidden or at least pass through the physician's hands; I have recently had an experience of this sort and it has made it seem advisable to suppress the correspondence, for a hysterical boy wrote his weak mother of his intolerable physical and mental torments until she took him away uncured.

If we have so far succeeded as to get the hysterical child into the hospital, what is next to be done? There are cases where isolation alone accomplishes everything, where morbid manifestations cease on admission to the hospital. This happens especially with paroxysmal symptoms, not only in *chorea magna* and somnolent states, but also in those of motor irritability, *e. g.*, in hysterical chorea. Now beware of discharging the children too soon. But in the great majority of cases this favorable termination does not occur, the symptoms continuing in the hospital and require special treatment for their relief. As all hysterical symptoms are psychical, the means of cure can only be psychical, that is, acting on and through the child's mind. This is a fundamental law which must always be kept in view in treating hysterical symptoms. But this psychical treatment may be purely undisguised, as Strümpell says, and in childhood for reasons cited above in the prognosis, this form is often successful, or an indirect psychical, *i. e.*, various remedies to be more fully discussed below, usually of a mechanical nature, but in the consciousness that they are not simply physical, but act through the child's mind. I have been accustomed to divide the methods of treatment of hysteria in children into two sub-groups, which is authorized by the fact that

each of these methods has its definite indications, and this division has the approval of several colleagues, *e. g.*, Fürstner's. In hysteria in children I speak of a "method of surprise" and of a method of intentional neglect. The first is the most effectual and the quickest—it is to be employed especially in all forms of paralysis and contracture, in astasia-abasia, aphonia and mutism, as well as in articular neuralgia. It acts the most forcibly on the child when it has just come to the hospital, then when all the favorable factors above mentioned co-operate, which attend the admission, in that it leaves no time to be sick. Not only that the treatment must be commenced immediately, but it must be carried to complete recovery at the same sitting if possible. For it must always be remembered that remnants of the disease, which remain after the first treatment, are very much more obstinate after the child has recovered from its first bewilderment and astonishment at the means used and the physician's quick success, and are often not to be relieved at all. Here the adeptness of the nurses and assistants is of the greatest importance—they may certainly treat the trifling remnants of the disease and must not desist until all are overcome. I have already stated in the case of apparent spinal tuberculosis how such cases are to be handled. Of course no general rules can be given as to the sort and kind of treatment to be employed in the special case. Here "*practica est multiplex*" is true; it is proper to individualize as much as possible. This method of surprise can usually be purely undisguised, owing to the child's great psychical susceptibility and therefore it should always be tried, as I am of the impression that success attained in this purely psychical manner is the most impressive and so more permanent than that by the indirect psychical. The following may be cited incidentally. This purely psychical method of surprise most often succeeds in cases of astasia-abasia and it is therefore very fortunate that this type of disease is so common in children. I have often gotten them to stand and walk by simply taking them out of bed, placing them on their feet and telling them to walk. Many times I have had to enforce this command by a gentle slap

on the buttocks. In a case of intermittent astasia-abasia—I cite the case simply because it will show that in hysteria it is essential to be inventive—all possible methods had been tried without success and I therefore believed that nothing was to be accomplished by simple commands. I put the ten-year-old girl in a suspension apparatus and arranged with my assistant to drop the child suddenly on her feet at a sign from me. When it occurred the child stood up naturally and the astasia was cured. The purely psychical method of surprise does not suceeed so well in flaccid paralysis—still I have effected a cure several times, as shown, by the simple command "you can raise the arm." We should try to relieve by force the hysterical contracture, as well as those with articular neuralgia, *e. g.*, make several movements of the leg bent a right angle at the knee—now put the child on its feet and make it try to walk. In hysterical aphonia make a few simple manipulations of the larynx—and then sternly command the child to pronounce several vowels, then to say words; in a brief sitting the trouble has thus been completely cured. If the phonation of vowels fails, have the child cough aloud, as they usually can. Hysterical cough and tachypnoea may often be cured by a simple stern command. If this undisguised psychical treatment does not quickly succeed, which, as stated, can and must be modified in the most diverse ways, then resort to indirect psychical measures. Of these, two methods have attained an authorized standing in the treatment of hysteria—first electricity, and second, hydrotherapy, particularly in the form of cold douches. As shown, these methods do not generally act directly physical in hysteria, but through the psyche; but if this effect is more closely studied it will be seen that this method of treatment is very complex. The purely suggestive value of both methods is to be considered, to faith is due their efficacy. I do not believe I err when I say this factor is very small in children, which is very important in adults. In my opinion the second psychical factor is the most important in children, namely, that both methods are extremely unpleasant and in part painful. The child fears them and especially their

repetition, and this fear is often strong enough to overcome the concepts engendering the disease and thus the symptoms attending it. Third, in the electrical treatment of the palsies it is to be considered that the patients see the limbs, they regarded as lifeless, move again; or in contracture that a strong electrical current is able to relieve it and also against the child's will. Fourth, and this is not a pure psychical effect, these two methods often reflexly induce movements—electricity by the pain it causes—the cold douche by the general cutaneous irritation—which were not possible previously and which can now be repeated—often it is also a matter of simple efforts to get away. So, *e. g.*, in aphonia and also in mutism the child can be directly made to cry by both methods, and then of course the aphonia is cured; or in children with blepharospasm pull open the lids, what ophthalmologists have effected by simply plunging the child's head suddenly into a washbowl.

I need not say very much about the special use of electricity. I generally use very strong faradic currents, often the faradic brush. The point of application depends on the symptoms. The douche should be strong and cold—still extreme cold is to be avoided, in summer about 20° C., in winter 30.°

What Strümpell says as to the method of surprise is true: "In hysteria," and I might add especially in hysteria in children," either miraculous or no cures are effected." If something and possibly everything is not accomplished at once, nothing is usually to be gained by other measures—then the hospital treatment is no better than that of the family physician at home. But then this method of surprise is adapted to only a part of the hysterical symptoms, particularly those constantly present and of these the contractures and palsies especially. In the more paroxysmal symptoms—the hysterical seizures, like *chorea magna*, somnambulism and also in the usually constant motor manifestations of hysteria, like chorea, myoclonia and, as they are called, the paroxysmal pains, I often employ a method which accomplishes no miraculous cures, but attains the purpose slowly and gradually. I call this method intentional neg-

lect; Fürstner prefers to speak of it as disregard. When these hysterics are admitted to the hospital and one is firmly convinced of the nature of the symptoms, pay no attention to them or as little as possible. All such patients are to be put to bed where they can have their seizures without causing very much trouble. It is of course very essential that the nurses act intelligently, they are not to be excited and worried by the manifestations apparently so severe, for then the game is up. In these cases it is well for the attending physician to carry the seeming neglect very far, to apparently overlook the child for days at a time. The seizures are repeated, *e. g.*, once or twice, but then wholly disappear—so it happens with the neuralgia and the other symptoms mentioned. From what I have already said as to the injury of too anxious and solicitous care at home, to which is due, as Fürstner says, conscious, if also instinctive efforts for sympathy, it is readily seen how this neglect usually acts. If the symptoms are not noticed they will gradually disappear; the child forgets them entirely, so to speak. But it is evident that this mode of treatment is impossible at home—the parents would not carry it out and the physician who did as described and whom the parents would not understand, would soon be replaced by another. For the employment of this method in the hospital the parents must be intelligent and have patience. Of course the "neglect" in every case must be more or less complete; several hydropathic measures, like the douche and pack, are not to be excluded; more rarely electricity, as in neuralgia—but it is best to do just as little as possible.

In the second place, "disregard" is to be considered in the cases where the "method of surprise" has failed. It is still effectual if the effort to cure quickly was soon given up and not too many different experiments made. It can then effect a cure in the same way as if employed primarily. Still I must confess I have not been very successful with this secondary employment of the method of neglect—for if only a short retreat is made in hysteria, the lost position is rarely regained.

As to the positive and negative importance of disregard I can cite a good example from my own experience. I treated a boy with electricity for a long time without success for a hysterical contracture of the left ankle, corresponding anaesthesia and contraction of the visual field. After consulting his mother I discontinued this treatment and the contracture disappeared of itself, as the boy had to help his mother move. I did not know of this, and intending to present him to the medical society, I sent for him. The contracture returned in my waiting room and was again complete after an electrical examination of the leg muscles.

A few words remain to be said of the other methods of treatment proper in hysteria and of the special treatment of several symptoms. In discussing the electrical and hydropathic treatment I ascribed not an unessential part to the pain and fear they excite in children. The question naturally arises—cannot such painful measures be employed openly—in the form of physical chastisement? And, like Strümpell I do not hesitate to go into this more fully. If we employ physical chastisement with good success in the training of children—it is in no way attended by the humiliation as in adults—we must give, of course, the nurses of the children in the hospital the right to punish. There can be no doubt as to the propriety of energetic punishment by the physician, which is for a remedial purpose, if the parents have expressly given the physician permission for such treatment. Finally there is no doubt that the remedy may often be very effectual and I know of cases from the practice of my associates of the rapid cure of hysterical palsies by the whip. Still, like Strümpell, I can only advise the intentional and deliberate employment of chastisement in hysteria in children; that we should not resort to such a measure in anger is self-evident. Many parents could not be asked for permission to punish without their immediately taking the child from our care. If permission is given, the parents are very thankful and wholly satisfied if it succeeds, but if it fails, and of course that may happen, they only speak of the physician's barbarity. Finally, if I were driven to such treatment, it would be very distasteful to me, as to

the majority of physicians. I do not refer, of course, to a gentle slap on the buttocks or to boxing the ears, which are often very effectual in support of the other psychical measures in children, but of an energetic physical chastisement. I believe on the whole we can be well satisfied that we have remedies in electricity and cold water which act similarly to chastisement under the mantle of a legitimate and otherwise indicated mode of treatment, and we can as a rule use them with benefit. Owing to the cruelty of the remedy and from the fear of causing ugly scars I have never decided to use the cautery in hysteria in children, although the remedy was once commonly employed. Still it is perfectly proper to threaten such measures and even an operation—yet I must confess that I have never accomplished much in children by these threats. I have only used them in cases where I had already tried many others, I may say to cover my retreat. Possibly the children noticed my threats were not serious. Besides I have already stated that many hysterical children hardly fear an operation, but even desire it.

In neuralgia, metallo-therapy, acting purely psychically, is to be tried: copper, silver or gold strips are to be applied to the painful spots. The application of a magnet may also be tried. But in the majority of cases not much is accomplished by this method—I have never seen transfer in children. Hysterical anaesthesia requires no treatment, the child is usually wholly unconscious of it; if combined with paralysis it disappears on relieving the latter.

In hysteria, all of whose symptoms are due to concepts, it might be fancied that hypnotism would be the most successful, for according to the Charcot school, which I do not accept, hysterics only are hypnotizable. But experience shows that hysterical adults often resist the shrewdest hypnotists—often hypnosis is not to be attained. I have never employed hypnotism on hysterical children; in the majority of cases I have gotten along without it and consider this advisable. I have discharged several cases uncured and perhaps it would have been well to have tried hypnotism. I depreciate hypnotism by no means. At any

rate not the method of Nancy—if I rarely employ it. Yet I agree with Strümpell that in hysteria we must use it very cautiously; for here even with caution an essential injury, a material aggravation or a direct production of hysterical symptoms is to be feared under certain circumstances. This is true especially of children. But above all—I repeat—I have dispensed with hypnotism in almost all my cases of hysteria in children, and I believe, as I have stated, that it is always best and that the cure is more permanent if it can possibly be effected without any special remedy.

Of course all these experiments and remedies fail under certain conditions—even at the hospital. In these cases it is the certain duty, as much or more than with the general practitioner, not to make the prognosis more grave by too long continued efforts. The child must soon be discharged. It may be sent home, if the parents have gradually become so far composed as to the sort of trouble it is, that the method of disregard may there be continued. But the patient is usually taken to another physician, whom it is hoped will be more successful.

If one has the parents' full confidence he may be asked under these circumstances what he thinks of consulting a quack. From our knowledge of the nature of hysteria and its remedies, it is evident that empirics may be of assistance, for the secrecy and mystery connected with such consultations and cures often render the shepherd or blacksmith capable of effecting a cure after the physician has failed. If there were no hysteria there would be no quacks, Strümpell says, but adds correctly: If hysteria were always recognized at the proper time, quackery would be very effectually restrained. Being as it is, if we consider the cure of hysterical symptoms possible for a quack, after being treated in vain by ourselves and other physicians, and that is always so—and it being our duty to aid in the patient's recovery, we do not have the right to close this road to his relief, especially as such measures in hysteria will usually damage only the parents' purse. Urgent dissuasion in such cases is also impolitic, as the majority of parents consult the quack counter to the physician's advice, and then if he

succeeds, the physician's dissuasions will seriously injure himself. Therefore in hysteria I never advocate a trial of illegitimate medicine—yet I do not unconditionally advise against it, and to parents of some intelligence I try to explain why I consider the success of a quack possible in this trouble, although physicians have not benefited the child. If this is done it is of value to keep the child in mind and should the quack advise injurious measures, these can be prevented.

Just as in this case I would refrain from giving my opinion as to the possibility of effecting a cure by a pilgrimage to a wonder-working image of the Virgin Mary or to the Holy Coat of Treves. *La foi qui querit*—it is faith that cures, what is true of all therapeutic measures in hysteria; and therefore, as we know from experience, such a pilgrimage may be very effectual in this disease—merely reflect what intense psychical excitement and change of opinion are produced in credulous minds by everything connected with such a measure, and how these usually act favorably in hysteria. I would never advise against such a pilgrimage to a shrine, for it would be far more agreeable to me than the consultation of a quack, but in my practice almost wholly among Protestants, I have had very little to do with such matters.

I must add a few words as to special measures often demanded by the individual symptoms of hysteria in children. As above stated, the hysterical seizures are best overcome by paying as little attention to them as possible. Still we have to abandon this reserve when they become so severe that serious injuries are to be feared, or from their long continuance and constant recurrence there is danger to life. The latter is very rare in adults and still more so in children. First see if the convulsions can not be stopped by pressure at certain points, *e. g.*, the lower abdomen or large joints. This very often succeeds, the efficacy of which has been spoken of previously. But if it fails, then chloroform narcosis must be resorted to in severe cases.

Chloroform narcosis may also be used for the relief of hysterical contractures, especially in those cases where we

are not perfectly certain as to their hysterical nature. So it was in a case above mentioned, where the hysterical contractures had followed articular rheumatism. Then in the narcosis, if convinced that the joints are not ankylosed, place the child on its legs, if they are the seat of the contracture, ere it has fully awakened, it will usually walk and the contracture will be permanently cured. Still, as I have stated, these methods do not always succeed, because in hysteria the tendency to contractures may be so strong that they recur before completely awaking from the narcosis—many times will not completely disappear during the narcosis.

I have often been successful in hysterical stammering by the following procedure: I place an electrode on each side of the larynx, as in aphonia, and then turn on a strong faradic current. During this procedure I have them count aloud or recite a poem. If the current is strong enough the stammering is usually relieved. Still I have often had to use electricity a long time before effecting a cure. I once succeeded by the method of disregard. One case, which I could only treat polyclinically, I could not cure the stammering.

Persistent trouble in swallowing in hysterical children is the best relieved by passing the stomach tube. Anorexia often disappears as soon as the child is admitted to the hospital. The children are often induced to eat by simply placing the food before them and going away—when it will all be eaten. In stubborn cases a single forcible feeding by the physician relieves it, always using the stomach tube. Still I will add that when the children are seriously run down from the long continued anorexia, the diet must be very bland at first.

In epidemic hysteria a strict separation of the children affected is essential. In the two sisters above mentioned, who had *chorea magna*, the seizures ceased when I placed them in wards far apart. After that a special treatment was no longer necessary.

Under all circumstances it is well too keep the children in the hospital for several weeks after the manifest hyster-

ical symptoms are cured. The danger of a relapse is thus very materially lessened. Is this way the children are kept from the usual injurious influences of their home as long as possible and are strengthened psychically by assosiation with many children who are not nervous. The children are also to be invigorated physically by continuing the hydropathic treatment, exercise out of doors, turning, etc. The administration of iron and the best food possible is indicated if chlorosis is present, as it usually is. Other trifling physical troubles may of course receive therapeutical attention at this time. If all these measures are carried out we will have the pleasure of seeing these children escape a relapse and be permanently free from hysterical manifestations.

MELANCHOLIA OF LEPROSY.

By ALBERT S. ASHMEAD, M. D., New York.

DR. HANSEN believes that there is no such thing as melancholia of leprosy, and that this is a disease invented by me. *It appears by this affirmation that Dr. Hansen knows little about leprosy, but what he has seen of it in Norway. For in other countries, melancholia of leprosy has been found. He gives a reason for his belief. He is persuaded that the brain is never affected in leprosy.

I find in Dr. Havelburg's (of Rio Janeiro) last report† that, of thirty-six autopsies of maculo-anesthetic form, there were two cases of simple meningitis, one tubercular meningitis, one of nodular tuberculosis of the cerebellum, two of hydrocephalus, two of degeneration of the posterior columns of the spinal cord, one of atrophy of the spinal cord, one of thickening and hyperæmia of the lumbar portion of the spinal cord. In this list there are only six brain diseases. Here is a list where all but one are brain diseases: Dr. Beaven Rake found among the chief intercurrent diseases during 1889, in the Trinidad Leper Asylum, two cases of epilepsy, one of mania, one of sunstroke, one of cerebral hemorrhage, one of cerebral thrombosis. Chief intercurrent diseases during 1892, in the same asylum were; one epilepsy, one mania, *three dementia*, one hemicrania.

This proves certainly that the brain may be affected,

* "I will not take up Dr. Ashmead's discussion of the Leper conference of Berlin I will only say that, I still never have seen an instance of Melancholia of Leprosy. This affection is a discovery of Dr. Ashmead, but I regret to say that neither I nor any one else in Norway has any idea of the exsistance of such an affection. . . . the reason is that the brain is never affected in leprosy, etc."—G. A. Hansen M. D. Jour. of Amer. Med. Asso. Feb. 26, 1898.

†Hospital dos Lazaros, Rio Janeiro, 1897.

and consequently that there may be a melancholia of the leper.

The following will show Dr. Hansen that such a condition really exists, and that there are things connected with leprosy, which can be better learned in America than in Norway:

"The initial phenomenon of leprosy," according to Dr. Garcès, of Colombia, "is a vaso-motor paralysis, a shock to the peripheric nervous system, which prepares it for receiving the microphyte encountered in leprosy, but which alone does not constitute the disease. The latter may exist in the anesthetic form without microbes, and perhaps likewise in the initial stage of the other forms; in all, the nervous lesion and the local circulatory disturbance precede, and when these exist, the microbe establishes itself as a swarm of bees alight in the hollow tree which can contain them."

I will only observe here, that if the vasomotor paralysis is the initial lesion in nervous leprosy, there must be mental depression independent of psychologic causes. Our American author says again:

"In short leprosy is a microbian disease, but whose primordial symptoms and lesions are localized in the nervous system, *and independent of the microbe sometimes through life. It is possible to carry the bacillus of Hansen, without being a leper, and vice versa there are lepers without bacilli.*"

I quote these lines with a hope to astonish Dr. Hansen, as he astonished me by saying that there is no such thing as melancholia of leprosy.

I think that Dr. Hansen has never been in Japan, as little as I have been in Norway, and I suppose that his curiosity has not been much occupied by that far-off country. I hope therefore to tell him something new, by informing him that in Japan suicides of lepers from melancholia are not by any means uncommon. If Dr. Hansen will only consider that there are among the forty-five million Japanese, at least one hundred thousand lepers (registered and unregistered), that in Colombia, where, as Dr. Garcès told me, lepers committed suicide by causing themselves to be bitten by snakes, there are thirty thousand

lepers; he will perhaps come to the conclusion that there are things about leprosy, not invented by me, which, to use his own expression, *he has never seen.*

That Dr. Hansen has had no opportunity in Norway, to observe facts of this kind may be explained by the following passages which I extract from Dr. Wolff's (of Strasburg) pamphlet, *Leprosy Reminiscences from Norway.*

He quotes Hansen himself:

"The conditions of life, which contribute to the expansion of a contagious disease, are extremely favorable in this country. In the first place, the consumption of water for cleaning purposes is very scanty, the cleanliness of the persons and the dwellings exceedingly defective. Hence the formerly enormous spread of scabies; fifteen years ago there never came a leper to our institutions who was not scabious. To the uncleanliness, as an element favoring the propagation of a contagious disease, is superadded another one, which might be called psychological and which is connected with education. Our peasants are all fatalists; if they are sick, it is because it was written; it never occurs to them that they might become leprous in consequence of their own carelessness, and if this fate has overtaken one of them, his surroundings would deem it sinful to put the slightest restraint on their intercourse with the sufferer. The consequence is that lepers are as intimately frequented as healthy people, which means a great deal with our peasantry. They live not only in the same house with the leper, but in the same room, they eat at the same table, from the same dish, with the same spoon, nay, they sleep in the same bed.—Hansen." (What an admirable institution the mixed isolation law of Norway must be, where two-thirds of the lepers are isolated in these homes.—Ashmead.)

"Finally," says Wolff, "we have a few words to say in regard to the psychological condition of the lepers in Norway.

"The patients feel comparatively happy, probably because they belong the most part, to the lowest classes, and therefore find themselves more comfortable in the lazarettoes than at home. In spite of the horrible and contin-

ual pains they have to endure at certain periods of the disease, there never occurred a case of suicide of a leper in the asylum."

It appears then, that the physical and psychical condition of the Norwegian leper is an exceptional one. He passes from filth and poverty to a comfortable dwelling, which must be a palace to his mind. His conviction, held fast in his pachydermatous brain, is that there is a destiny to which a true Norwegian ought to pay a manly submission; his unemotional nature, ruled, controlled by this belief, puts him beyond the reach of a melancholic influence, and allows him to be, as Dr. Hansen cheerfully observes, "of the same mental disposition as other people," and "remarkably seldom we see a depression of their good humor in spite of the disease." But, great God! what must be the mental disposition of these other people, and how low their habitual good humor must be, if not even leprosy can depress it!

Prof. Meschedes (Königsberg), Section of Neurology, International Medical Congress, Moscow, August 19 to 26th, 1897 (Dr. Schlessinger, of Vienna, reporter), speaks as follows: "I consider that leprosy exerts a direct influence on the development of dementia, the cerebral phenomena resulting possibly from some irritating lesions of the nervous system, brought on either by Hansen's baccilli or by their toxines.

"I base this theory on a case of psychosis with which I have recently met in a leper.

"The patient, a man of 28, showed the first symptoms of leprosy in 1891. In December, 1896, without any obvious cause, he was suddenly attacked with symptoms of acute dementia, which necessitated his admission into my wards. He was discharged in 4½ months, having recovered from his mental affection, and was transferred to the medical wards, to receive treatment for the leprosy itself.

"After a short initial period of melancholia, during which the patient refused to take food, hallucinations of all the sense organs suddenly developed, with excitement, oppression, intense motor discharges and delirious ideas of a



Icelandic Leper Woman; Lepra Mutilans (Ehlers).

"Melancholia of Leprosy" (Ashmead). Dr. Ehlers allows me to use this photograph (from Dr. Ashmead's Suppression and Prevention of Leprosy, Copyright, 1897).

religious nature. After a few remissions, and an attack of megalo-mania, the mental phenomena gradually improved and finally disappeared entirely.

"We may note as constituting the peculiarities of this case, the sudden explosive onset of the mental trouble, and also the existence during the initial period of evident symptoms of cerebral and cutaneous congestion. The skin of the face was particularly red and swollen, and the cutaneous sensations evidently constituted the main starting point of the hallucinations. The patient fancied that he was being tortured; he felt a sensation of heat which he himself estimated to have been fourteen times higher than the normal body heat; there also existed a state of sexual excitement of unusual intensity, and a disturbance of the muscular sense, which gave him the impression that the whole body was being lifted. The congested state of the skin subsided on parallel lines with the retrogression of the psychic disorder. The last hallucinations of the period of decline also manifested themselves in the sphere of cutaneous sensation; the patient had the impression that snakes were creeping round his legs.

"The predominance of tactile hallucinations, pleads, in my opinion, in favor of the hypothesis of a direct action of the leprosy bacilli on the nervous system.

"I may add that one of the patient's brothers had also suffered from dementia. No other member of the family had ever exhibited any psychic disorders, so that there can be no question in the case, of any hereditary psychopathia properly so-called, but a simple family predisposition to mental trouble. The question might also be asked whether the attack of dementia was not due, in the case of the patient's brothers, to some latent leprous infection."

PROGRESS IN NEUROLOGY.*

By PROF. C. H. HUGHES, M. D., St. Louis.

SINCE last we met Neurology continues its onward march, both in special discovery and in new and better precepts and principles to guide the practice of our art. More and more as the years go by, medicine in general with its many departments of practice, looks to the Neurological sky for light, even more than, or at least quite as much as, it looks elsewhere about the firmament of the sciences for further illumination.

The dictum of Cullen more than a century old, promulgated in a century of theory, has become an embodied fact of clinical medicine, notwithstanding the justly recognized influence of the blood microbes, baccili, bacteria, etc., in the play of health and of the morbid motions of the economy, and in the development of phagocytosis in the destruction of disease. The nervous system, omnipresent in every problem of disease, of life or death, is now prominently considered by all thoughtful and well informed men of medicine, and neuriatry and psychiatry have become familiar phrases in, as they are common phases of, symptomatic expression and descriptive thought. "*Quantem ergo quidem video motus morbosi fere omnes a motibus in systemate nervorum ita pendent, ut morbi fere omnes quadammodo nervosi dici queant.*"

It seems strange that we can in mental vision vault across an intervening century and see a British observer, before even Marshal Hall had differentiated the sensory from the motor nervous system of the cord, promulgating a doctrine from

*Chairman's Address before the Section on Neurology and Medical Jurisprudence of the American Medical Association at Denver, Colorado, June 10th, 1898.

the meagre data of his time which all the rich revelations of neurology and neuriatry since his day, of psychology or psycho-physiology and cerebrology, including psychiatry, have planted on an immutable foundation of truth.

It would be interesting but not germane, to dwell awhile on the work of this early Neurologist and his American contemporary, Benjamin Rush, as we did in regard to the latter in last year's report on the Century's Neurological progress, for comparison, but the record of the year's work in our field will more than exhaust the lawful time limit of our task to-day.

During the past year the Neurological view of heart disturbance finds further confirmation from physiological sources in the following recent editorial reference to the subject in the *Deutsche Wochenschrift:*

A series of experiments at Buda Pest, producing artificial valvular insufficiency and dividing the vagi, seems to demonstrate that alterations in the nervous system play an important part in preventing compensation in cases of valvular insufficiency. The vagus is the intermediary between the heart and the extracardiac nerve centers. After both vagi were severed in these experiments, the spinal nerve mechanism of the heart was insufficient to carry on the work of the organ unaided for a certain length of time, but this period was much shortened if, in addition to the severed vagi, there was also valvular insufficiency. Likewise, the heart carried on its work in spite of valvular insufficiency, when the innervation was undisturbed and even one vagus was left. The same result was obtained alike with cats, rabbits and dogs, leading to the inference that the cause of lack of compensation in a person with valvular insufficiency is in some functional or anatomic disturbance in the cardiac innervation, rather than in the cardiac musculature. Numerous clinic symptoms confirm this assumption; arhythmia, etc., and Ott's statement that he found the nerve cells degenerated in cases of "incompensation."

The direct neural and reflex nervous disorders of the heart constitute our chief concern in clinical medicine and damage to the vagus and upper abdominal viscera, consti-

tute the chief concern in the management of most cardiac affections, as the Neurologist, the Alienist and even the general practitioner, encounter them in practice.

Here, as in nearly every department of medicine, Neurology, physiological or pathological, continues to shed its salutary rays of light on clinical medicine.

The past year has witnessed more attention to psychiatry on the part of Neurologists and more attention to pathological work, as instance in illustration, the wide range of subjects treated of in the State Hospitals Bulletin of New York, a publication which bids fair to become as famous for record of good work as the well know and unsurpassed West Riding Asylum Reports of Great Britain.

A committee of the American Neurological Association has since our last meeting taken up and reported to that body on the subject of the after care of the insane.

In this connection, I note that Dr. Putman, of Boston, in the transactions of the Association of American Physicians and in the *American Journal of the Medical Sciences*, offers new views of Thyroidal diseases and Graves's disease, and Dr. J. T. Eskridge, of Denver, also on some new uses of the Thyroid Extract. Our colleague of this city who never rests from his labors, will soon be heard from in the *American System of Practical Medicine*, *Vol. IV*, now in press, has reported in the September *Medical News*, an interesting case of intradural spinal tumor, extending through the Foramen Magnum, compressing the extreme upper portion of the cord and almost completely destroying it at the third cervical segment.

Up to 1884, Drs. Goodell, Pallen and other gynecologists, advised the removal of the ovaries in all cases of insanity.

That same year, Dr. T. G. Thomas, reported three cases of insanity following the operation and Dr. Putzel, of the New York City Lunitic Asylum, reported one hundred post mortems on insane women dying in that institution without a trace of disease of the ovaries.

Since our protest in 1882 (*vide* ALIENIST AND NEUROLOGIST, JAN., 1882) against the too reckless surgical dis-

position then in vogue to "obliterate the neuropathic constitution by excising the ovaries" and the later protests of our Neurological colleagues, a sensible conservatism has supplanted reckless radicalism concerning this operation which Spencer Wells, Matthews Duncan and Martin, of Berlin, early discountenanced. And now Neurology and Gynecology clasp hands on common grounds respecting this operative procedure. Lately Drs. Weir Mitchel, Wharton Sinclair and F. X. Dercum have counselled and reported marked progress in the direction of a salutary escape of the pelvic viscera from the surgeon's knife in neuropathic states hitherto erroneously considered remediable only by radical operations, and the medical press since our last meeting (*The Medical Council*, March, 1898) thus marches with us in line of neurological progress:

"Somewhat recently two Italian physicians, Drs. Angelucci and Pieraccini, of the Provincial Asylum of Macerata, addressed letters to prominent alienists in various countries, most of them in charge of asylums and clinics, resulting in the tabulation of one hundred and fifteen cases subjected to a pretended operation, and one hundred and nine actually operated upon.

Their studies forced them to the sensible conclusion that the removal of normal intra-pelvic organs for the cure of general nervous affections was wholly unjustifiable, and that hysteria in itself is actually a contra-indication for the performance of a serious gynecologic operation. They suggest, further, that in hysteric condition not remedial by other means, a simulated operation may be beneficial. The pathological condition of the uterus and its adnexa should be the only indication for their removal, and that all the benefit that may accrue to nervous and insane women from the removal of any part of their generative organs is merely due to suggestion, and this is equally effective in simulated procedures.

The entire editorial under the caption of "Unjustifiable Pelvic Operations," is a further evidence of the invasion of neurological thought into the domain of general clinical medicine and surgery especially during the past year and con-

firms our long ago expressed conviction (*vide* ALIENIST AND NEUROLOGIST, 1880) that "Neurology is destined to reign paramount in medical thought and practice."

Playfair, a professor of Obstetric Medicine in Kings College, contributes a chapter to Allbutt's English and American Gynecology, and Howard Kelly, our own countryman, in a late number of the *American Journal of Medical Sciences*, opposes needless vaginal examinations and repeated local treatments of virgins from a psychical standpoint, as any Neurologist might.

The year since last we met closes with the prevalent professional conviction, no longer confined to Neurologists alone, that the neuropathic diathesis is not removable by the knife.

The manner in which the neuropathic constitution is often overlooked among gynecological chirophiles is revealed in the following taken from the "conclusions" of a writer in the *Boston Medical and Surgical Journal* no further back than 1895:

"(3). The extent or form of pelvic disease is no indication of the character or degree of the resulting nervous manifestation.

"(4). The most thorough pelvic examination should be made with the aid of an anaesthetic, in every obscure case of [to the ordinary practitioner and gynecologist, of course, he means] nervous disease in a woman, occurring during the age of menstrual activity."

Why not a genital examination and operation in all nervous men?

"(5). Some forms of uterine disease may occasion an amount of nervous disturbance which may require the removal of the healthy Fallopian tubes and ovaries as the simplest and safest means of cure."

This is an exceedingly vicious conclusion, for there can be no justification for the belief that the uterine appendages are at fault unless they are sensibly diseased, and neurology, which has the best right to be heard on this subject, has never taught or believed in this monstrous conclusion.

Great neurological progress has taken place in the past and few preceding years in the abandoning of such conclusions by the best gynecologists.

The influence of magnetic stress on physiological action as a part of Neurotherapy is worthy of note here, and on this subject our colleague, Prof. W. J. Herdman, in the *Bulletin of the Electro-Therapeutical Laboratory of the University of Michigan*, in his capacity of director thereof, called attention to this subject, October, 1887, showing a ten per cent. daily increase of eliminated urea on the days when subjects were in the magnetic field and upon animals, twenty per cent. of increase of nutrition for eight weeks while in the magnetic field, with a gradual decline after the twelfth week, showing tolerance. These results correspond with d'Arsonval's.

The surgical treatment of Exophthalmic Goitre was the subject of discussion at the French Surgical Congress, Paris, October, 1897. M. Faure, of Paris, reported having excised the cervical sympathetic in three cases. In the first of these, the superior cervical ganglion, along with five or six centimeters of the descending cord, was excised on both sides; after four months the exophthalmos had diminished, the goitre was less in size, the tachycardia and the general health had much improved. In the second, the entire sympathetic was resected on the right side (superior and inferior ganglion included), the superior ganglion and part of the cord only on the left side (because of the onset of alarming syncope); this patient improved still more markedly than the first. The third case died on the table after the entire sympathetic cord had been removed from the right side and the dissection on the left side was about to begin.

I introduce this record of so-called progress in surgical neurotherapy only to enter my protest against M. Faure's procedure. The improvement recorded in the two first recorded cases was not greater than would have come to the victims of his knife, under the enforced rest and expectancy of the operation, and the sympathetic system is not so useless in the human economy as to justify such radical

destruction. This, the death on the table of the third case operated upon confirms.

I oppose this surgical procedure also because it is not only too destructive, but because it is not necessary, since exopthalmic goitre is almost invariably curable without the knife, at least it has been so in my hands under arseniated and phosphorated bromide and blood reconstructive treatment, with adequate nerve and brain rest and changed mental environment for the patient. But one of my cases in a Neurological practice of thirty years has failed of recovery and that was taken out of my hands markedly improved for the useless gynecological operation.

I note this progress in neurology to condemn it, though M. Faure considers his operation a justifiable procedure and thinks chloroform did the fatality in one of his cases and the knife and not the neural rest and changed environment improved the others. I could have cured them under the same treatment without the use of the knife; I object to this surgical procedure also because I think the vagus quite as much in fault in Graves's disease as the sympathetic and it would be quite as justifiable to cut that as so much of the sympathetic cord as was excised in M. Faure's fatal case. Surgeons might call this progress in treating the nervous system for its diseases; Nurologists will hardly agree with them. Surgery has not up to date regarded the human anatomy quite as conservatively as Neurology. The sympathetic system of the cord should not be caused to perish that neural surgery may live.

As the thyreogenic theory of Graves's disease has not been proved, neither the thyroid extract nor the thyroidectomy treatment have received any new support during the past year, except that thyroidin, as Roumeville has shown, improves growth and reduces obesity in cretins and myxoedemics, thus giving some apparent though not real color, through the benefit induced in exophthalmic goitre to the hæmogenic over the neurotic theory.

Something has been added to the therapy of neuropathy during the past year. The suspension treatment of tabes modified by recumbent knee-abdomen process and

stretching of the sciatic nerve in sciatica, have passed from a great therapeutic expectation to their normal remedial limitations, and the much heralded massage cure for tabetics is now on the tapis to find the sphere of legitimate limitation during the coming year, as is the fate of all therapeutic fads.

Spermin (Poehl's *Deutsche Medicinishe Wochenschrift*, October 7th, 1897) has been used with benefit by Wesbitzky of Prof. Payoff's clinic in St. Petersburg. One of his cases, a soldier of sixty years of age, after ten injections, improved markedly in gait, posture, pains and perception (tactile and electric), etc. A second case, not so typical, improved but not so markedly.

Many new cures for epilepsy have been emblazoned on the therapeutic horizon during the past year, but none have yet eclipsed the Brown-Sequard formula.

Among the latest additions abroad to the therapy of this disease is an old remedy long used in this country before the advent of bromides, viz., Adonis Vernalis. Tekutiew, in *Neurologisches Centralblatt*, Feb., 1898, has recorded the case of a boy aged ten years, who had suffered from severe epilepsy for two years, 15 to 20 fits a day, and commencing mental degeneration. An infusion of Adonis vernalis with some codeine and sodium bromide was given, and the dose of Adonis vernalis subsequently increased. The attacks of epilepsy gradually diminished, and then ceased altogether. The treatment of Adonis vernalis was strongly recommended by Bechterew, who combined it with bromides, and found that some cases of epilepsy seemed to be permanently cured by it.

It will be noted, as I have taken occasion to remark elsewhere, in the deliberations of this and other assemblages that none of these newly vaunted remedies for the old disease, enable us to dispense with the old reliable bromide treatment as the essential adjunct and really main agent in every valuable combination. We are learning that the patient, not alone the convulsions of epilepsy, requires treatment and while a prudent therapy of epilepsy prompts us to minimize the bromides to the anti-spasomdic needs and vaso-motor

demands of the disease, the period for the passing of the bromides in epilepsy is yet far remote, if indeed, we shall ever be able to dispense with them entirely in this formidable affection of the brain.

Thyroid therapy has been much extended in its usefulness in Neurology, but my twenty minutes limit will not permit me to dwell at length on this subject.

The Johns Hopkins Hospital Reports, *The Journal of Psychology and Comparative Physiology* and the *Ophthalmologic Review* have contributed during the past year to neurological progress.

The after care of the insane, separate provision for epileptics, sequestration in hospital colonies, the increased attention given to the subject of asexualization for incurable and propagable and criminal neuropathic disorders, mark neurological progress during the past year and give hope of the staying of that neuropathic plague which, like a silent pestilence, has followed and damaged civilization in its march since its emergence from barbarism.

The literature of psychiatry in this country has been enriched also by a book by Dr. Kellogg on "Mental Diseases," Dr. Chapin's Compendium of Insanity, and John C. Shaw's Compendium of the Essentials of Nervous Diseases and Insanity, and S. V. Clevenger's treatise.

The advancing popular professional interest in psychiatry is further shown by the advent of Burr's "Primer of Psychiatry for Medical Men and Students and Trained Nurses," and the frequent contributions to the psychiatrical aspects of the practice of medicine and surgery from sources of clinical experience where until lately these subjects were ignored.

Psychological and Neurological medicine during the past year has elicited unusual interest in the general medical societies of the country. Chas. E. Beevar and H. K. Lewis, and Mills and Dana, of this country have, since last we met, brought out new books on the diseases of the nervous system.

The normal histology and pathology of the neuroglia (so called) in relation especially to mental diseases, has

been much elucidated during the past year by Dr. W. F. Robertson's report from the laboratory of the Scottish asylums, in addition to the contributions of other American and European asylums, especially the Italian. The *Monatschrift für Psychiatrie und Neurologie*, the *Allgemeine Zeitschrift für Psychiatrie und Psychisch-Gerichtliche Medicin*, the *Bibliographischer Semesterbericht der Neurologie und Psychiatrie*, the *Bulletin de L'Academie de Medicine*, the *Iconographie de la Saltpetriere*, *Archives de Neurologie*, *Annales Medico-Psychologiques*, *Bulletin de la Societe de Medicine Mentale de Belgique*, *Archives de Physiologie*, *Journal de Neurologie et D'Hypnologie*, the *Revista Sperimentale di Freniatria e Medicina Legale Della Alienazioni Mentali*, *Revista Mensile di Psichiatria Forense*, *Antropologia Criminale e Scienze Affini*, *Annali de Neurologia*, *Il Pisani Gironale de Patologia Nervosa e Mentale*, *Brain* and the *Journal of Mental Science*, *West Riding Asylum Reports* and our own special periodicals, the *Journal of Nervous and Mental Disease*, the *Journal of Insanity* and the ALIENIST AND NEUROLOGIST, the remarkably interesting Russian Neurological journals, the late International Medical Congress at Moscow, the great Italian Congress of Freniatria of the last year and the French, German, English and American Psychological and Neurological Associations of the past and passing year, this special section of the American Medical Association and the current general literature at home and abroad, have enriched and advanced Psychiatry and Neurology on the whole to a degree not comparable by any previous year in the history of Neurological and Psychological progress.

Neurology has been especially advanced by further contributions to our knowledge of the anatomy and physiology of the nervous system and more correct pathological understanding through further advances of the neuron conception.

The neuron is a proved unit in physiological and pathological processes and Lewellys F. Barker has done more than any other American during the past year to prove it.

Foster and Sherington have embodied the discovery of Raymon Y. Cajal, and the later amplifications of this new light on the nerve centers, in a new edition of Foster's text

book of Physiology. Dercum has offered some captivating conceptions thereon which do not yet appear as misconceptions and Van Gieson continues his researches to the glory of American Neurology.

I think it was Weindersheim who, in 1890, saw or thought he saw movement under the lense in an œsophageal ganglion of a living animal. The mobility of the neuron was suggested by Rabe-Ruckard and Lapine and Duval. Dercum's theory is a legitimate evolution and development.

Pierce Bailey's book, just from the press of D. Appleton & Co., on accident and injury in their relation to the nervous system, is the begining of that surgical approachment between surgery and neurology which needs only to be supplemented by the forthcoming book from the Neurological side on the relationship of the nervous system to accidents and injuries especially in its pathological states, to make the union complete.

Neurology in its Neuro-physiological and Neuro-pathological aspect is destined to re-unite all the specialties again to that general medicine from which they have been prone to become too much dissevered. We have progressed already to the point that binds neurology more or less closely to all clinico-medical and clinico-surgical problems. The labors of neurology in the medical advance of the Nineteenth Century have not been in vain.

DEGENERACY STIGMATA AS BASIS OF MORBID SUSPICION.*

A STUDY OF BYRON AND SIR WALTER SCOTT.

By JAS. G. KIERNAN, M.D., Chicago.

Fellow of the Chicago Academy of Medicine: Foreign Associate Member French Medico-Psychologic Association.

BYRON passed his first years of schooling under a man who seems to have taught him very little. He was then placed under a Presbyterian minister under whom he made rapid progress and for whom he always retained a strong like. The minister, Mr. Ross, though something of a disciplinarian, gave training eminently suited to such a child. By a well intended remonstrance which his position as tutor and pastor and popular opinion, then justified he offended Mrs. Byron, who like all people of capricious affection was extremely jealous of anyone who appeared likely to be more loved by her child than herself. In consequence of this he was removed from Mr. Ross and placed under a very serious saturnine Calvanistic young man named Patterson, who was the son of a shoemaker. Byron in early life was able with the aid of a stick to walk a mile or so but soon, would tire and need rest. When seven years old Byron entered the Aberdeen grammar school. Here he could acquit himself well enough in a fight, then the favorite pastime of boys, so long as he could hop and spring about, but was soon worsted, if the contest lasted any length. As a rule, Byron took most of his exercise on pony-back rather than on foot. At the Aberdeen grammar school Byron went

*Continued from ALIENIST AND NEUROLOGIST, January, 1898.

as far as the fourth class; he however displayed neither aptitude nor liking for his lessons; sometimes, as Jeafferson remarks, he was at the top of his class, but on those occasions the top as an Irishman might say was the bottom. To pique the ambition of the superior scholars to recover the place which they had lost without disgrace and to spur the less apt scholars to retain the dignity they had not won, it was the practice of the master of the school to invert the order of their classes so that for a moment the knowing boys were placed lower than the ignorant ones. On these occasions Byron, after walking from the bottom to the top of his form, more than once heard his master say in a bantering tone: "And now George, man, let me see how soon you'll be at the foot." The judgment of the masters about him was the judgment that has been accorded by pedagogues to so many children who have distinguished themselves honorably in later time. "Quick enough but wanting in application."

It should be remembered, however, that the capricious changes to which allusion has been made must inevitably unfit a boy for the regular discipline of a school; furthermore, Mrs. Byron was just the kind of a mother to spoil a child for all school discipline. Such a mother would be sure to demand unjust punishment at one time and resent any correction, however, just at another. Byron's mind moreover was not of a character which could well fit the then Procustean bed of a public school. During all his life his memory extraordinarily retentive on scenes and events was in this, however, not marked by mathematic brilliancy. It has been held quite extensively that mathematics tend to develop the reasoning power and hence to exert a beneficial influence over the control of the intellect. Certainly the experience of alienists would not tend to justify this opinion. There are many mathematician patients in insane hospitals whose mathematical faculty has shown much more compatibility with insanity than do the other sciences. Many paranoiacs make calculations of complicated character without inaccuracy. One of my patients, who could calculate eclipses, found himself unable to explain

the frequent stoppage of his parlor clock, on any other theory than that of persecution by unknown enemies. On the other hand, the rest of the sciences in insanity often revert to the fetichic nature of the primitive folklore in which all science, religion and art had its origin.

The infant prodigies* (who are expressions of degeneracy taking the form of premature senility) very frequently exhibit great mathematical powers associated with mental dullness or defect. As Langdon Down† has shown, there are cases of feeble-minded children where the power of mental arithmetic exists to an astonishing extent. One boy twelve years old could multiply three figures with perfect accuracy and so quickly that the listener could hardly write the six figures on paper before the result was given. This boy was so low mentally as not to remember Down whom he was in the daily habit of seeing and was always unable to tell his name. Another equally low in intellect exhibited as great mathematical powers. Another boy, who has recently been under his observation, can multiply two figures by two figures, while another can multiply rapidly two figures by two figures and a short time since could multiply three figures by three figures. Klaproth, the Orientalist, could not acquire the Berlin University course in mathematics to the satisfaction of the professor, but was able to acquire Chinese during the same period. Kepler, the astronomer, was a failure in pure mathematics, albeit he subsequently made such a figure in mixed mathematics and astronomy. In many instances, however, school training is the source of this deficiency, rather than the intellect of the scholar. Cabanis, the great physiologist of the eighteenth century, although intelligent, was regarded at school as obstinate and idle and sent home. His father allowed his son, then fourteen years old, to study thereafter in his own way and according to his own taste. It is unnecessary to state how successful was the experiment. Like Byron, Sir Walter Scott showed badly at school as a mathematician. It is within common experience that great

*Alienist and Neurologist, 1888.
†Alienist and Neurologist, 1887, p. 401.

arithmetical powers are often associated with mediocre philistinish intellects. This last association is often the cause of many brilliant failures by this class of people in business affairs. It is also the cause of a great deal of the inventive stupidity which so often mars "business" management of medical institutions. Figures, especially those of bookkeeping are to such minds a species of fetich to which all real interests of the community and the defective classes must be sacrificed. The absence, therefore, of great mathematical powers during the childhood of Byron was anything but an evidence of degeneration. There was a great deal of the rote element in mathematical teaching in those days as to-day, which must have proved repellant to a child like Byron, as it has done to similar shy yet quick children.

Byron, under Patterson and Ross, had shown very considerable aptitude for languages and history. Like Sir Walter Scott, he was especially fond of romance. His passion for natural scenery was early awakened. In their love for mountains he and Scott resembled each other closely. He read travels, histories and books on the East which left an influence on his mind evident in Childe Harold. One may smile, as Jeafferson says, for a moment at the thought of so young a child's first passion for a companion of the opposite sex. But no one who remembers Dante's passion for Beatrice (a love that warmed him in the tenth year) will regard as "mere child's play," the sentiment with which the boy of meditative moods and almost morbid sensibility regarded Mary Duff, the little girl with dark-brown hair and hazel eyes, whose charms of face and voice and form and manner gave him many a sleepless night when he was only nine years old. That he could neither feel passion, nor know the meaning of the word, at the time of his love's warmest fervor, Byron was certain when he recalled the affair and wrote about it in his twenty-sixth year. For months together it was happiness to the shy boy to be allowed to gaze at the girl, to attend her in her walks, to sit by her side in the play-room sometimes even to caress her. And it was misery to him to be away from her. Unutterably happy in her presence he fretted and

pined in her absence. This is not playing at love but the passion itself so far as a child, incapable of the peculiar desire to which perfect love owes so much of its color and warmth, is capable of the sentiment. Byron's sentiment was so lasting that learning of her marriage in his seventeenth year he experienced extreme emotional agitation. This occasioned one of those convulsive seizures to which he was liable at moments of supreme emotion. Mary Duff was well but unromantically married to an Edinburgh wine merchant. In Jeafferson's opinion apart from amatory precociousness, little George Byron differed from the majority of children in several respects. He differed from them in retentiveness of memory and in intellectual receptivity. "Knowledge, largely qualified with error, as childish knowledge must be, that came to him in his infancy, passed into the soul and never left it." When it is remembered how needful for happiness it is that persons acutely sensitive should be able to ignore annoyance, Byron's retentive memory must be regarded as a terrible gift of egotism. He differed from the majority of young people in the delicacy of his sensibilities, and a morbid shyness, that far exceeded the shyness of proud children, exposed to mortifying circumstances. The early amatory tendency, so far as it exceeded conditions found in normal children, was evidence of that premature senility commonly termed precocity. The other tendencies were the inevitable results of limitations in one direction. The fact that Josiah Wedgewood, Darwin's maternal grandfather, was lame led to his being taken from the rough "throwing" pottery work of his family and placed in the ornamental departments. Naturally the attempt to relieve ennui produced by lameness led the mind to turn in the direction of least resistance for relief.

Like deformity had precisely the same effect in Flaxman, the sculptor. Flaxman's father was an Englisnman who modeled and sold plaster images. This fact would be of no special bearing in Catholic countries where ecclesiastical influences foster art in the humblest by making it a source of gain, but in an Englishman it indicated an artistic tendency. Flaxman was born so rickety that in his early

youth he required crutches. His head was always disproportionate and he remained round-shouldered to deformity. Always drawing he became an early and precocious prize-winner of the Royal Academy. Here, the influence of monotony on a sickly crippled youth deprived of companionship, inheriting artistic tendency surrounded by a classical artistic atmosphere such as the shop of an English modeler must have had, was demonstrably evident.

Although Byron was addicted to reading, his enforced confinement does not seem to have had as beneficial effects upon him in this particular, as Hawthorne's year's confinement* by a lame foot did upon him. Much of the material that the latter accumulated for his future literary work was largely due to this confinement. While playing baseball he received an injury which lamed him. The affected limb grew considerably smaller than the other. Time was required to effect a cure. He used to lie upon the floor and read, and then he went upon two crutches. Everybody thought that if he lived, he would be always lame; Mr. Joseph came every evening to hear him repeat his lessons. It was during this long lameness that he acquired his habit of constant reading.

The same influence is traceable in Walter Scott who had such a degenerate skull that the following plea was made for craniectomy on the basis of posssible results in his case.† "Owing to imperfect bone-making, premature union of the two parietal bones along the sagittal suture occurred, thus causing the brain to push the vault of the skull up and back, giving it the peculiar oblong shape so often noted. Had the defect in bone-making extended to the other sutures, Scott inevitably would have been a microcephalous idiot. If the brain had not been forced to overcome this bone defect, it would have been larger and its convolutions would have been more numerous. Scott would have been another Shakespeare in fact, had there been room in his cranium to allow an active brain to functionate properly." No craniectomy could, how-

*Munger, "Century," April, 1894.

†Life of Hawthorne. Great Writer's Series.

ever, ever have given dramatic expression to Scott. This was all he lacked. Scott suffered from hydrocephalus in early youth. Like Cuvier he recovered from this and the sagittal defect was more than compensated for elsewhere.

At the age of eighteen months the eruption of the primary teeth was attended by considerable constitutional disturbances including a high fever and paretic phenomena resulting in exhaustion and lameness. In consequence of this lameness Scott was sent to the country and placed in charge of his grandfather, the shepherd of whom took him to lay beside the sheep. The habit of lying on the turf there among the sheep and the lambs gave his mind a peculiar tenderness for these animals which it had ever after. Being forgotten one day upon the knolls when a thunder storm came on, his aunt ran out to bring him in, and found him shouting, "Bonny, Bonny," at every flash of lightning.

So far as they can be considered apart from a possible lack of balance, these tendencies of Byron to retentive memory and intellectual receptivity were beneficial results of isolation from the ordinary frivolities which tease childhood. His morbid shyness and sensitiveness which clearly resulted from degeneracy aggravated by training rather than from degeneracy and deformity, must be considered as defects offsetting the benefits of isolation. These defects were the germs of the suspicional condition which afterward so marred Byron's life.

Mrs. Byron's degenerate predilection for quacks, took about the boy's twelfth year the direction of bonesetting or osteopathy. Byron was then under tuition of Mr. Rogers, who without stimulating emulation grounded him in the poetical phases of Virgil and the literary phases of other classics. This reversed the usual procedures of the schoolmasters whose mechanical tuition disgusts boys with classic literature.

Byron had a strongly affectionate regard for Mr. Rogers but hated the bonesetter. Upon him he played a childish trick. Arranging Greek letters in gibberish, he asked his tormentor what the language was, whereupon the pompous impostor declared the words Italian. A more agreeable

incident occurred in his intercourse with Mr. Rogers. "It troubles me, my lord," said the tutor, pausing in a lesson, "to see you sitting there in such pain." "Never mind, Mr. Rogers," was the answer, "you shan't see any signs of it again."

Blind to the nature of the case, Lavender, the bone-setter, did precisely what any other pretender of his kind would have done. He rubbed the foot with oil, twisted it about with violence and fixed it tight in a wooden machine constructed for "screwing" and "torturing" bone and muscle into better behavior. Day after day this barbarous process was repeated. The result of the treatment of course, was that the foot suffered more injury from bad surgery than deformity retained.

Scott, as Dr. Coolidge has pointed out, suffered from the results of anterior poliomyelitis, a condition which might occur in the healthiest child. It is not surprising therefore, that in spite of his lameness, he early taught himself to climb about with an agility that few children could have surpassed, and to sit his first pony, (a little Shetland not larger than a Newfoundland dog, which used to come into the house to be fed by him), even in gallops on very rough ground.

There is however, a greater tendency among unthinking people to ridicule conditions like club foot than conditions resulting from paralysis. Byron would undoubtedly suffer more from this old prejudice than Scott, Hawthorne, Wedgwood or Flaxman from their acquired lameness. Club-foot in popular folklore is a brand of imperfect birth. This folk-lore, as I have elsewhere* pointed out, often led to these children being exposed to death. Scott and Byron had a somewhat similar training as to poetry in their early years. The regions in which both were brought up, are the home of melody. It is no evidence therefore, of degenerate pre-cocity that both should have manifested early poetical tendencies. Byron's first rhymes were employed in satire.†

*ALIENIST AND NEUROLOGIST, October, 1895.
†Nichol's Life of Byron.

A gossipping, meddling old lady, who used to visit his mother was possessed of a curious belief in a future transmigration to our satellite, the bleakness of whose scenery she had not realized. Having given him some cause of offense he stormed out to his nurse that he "could not bear the sight of the witch," and vented his wrath in the couplet:

> "In Nottingham county there lives, at Swan Green,
> As curst an old lady as ever was seen:
> And when she does die, which I hope will be soon,
> She firmly believes she will go to the moon."

Byron owes his "first dash in poetry" a year later (1800) to his juvenile passion for his cousin Margaret Parker, whose subsequent death from an injury caused by a fall he deplored in a forgotten elegy. "I do not recollect" he writes through transfiguring mists of memory, "anything equal to the transparent beauty of my cousin or to the sweetness of her temper during the short period of our intimacy. She looked as if she had been made out of a rainbow, all beauty and peace. My passion had the usual effect upon me; I could not sleep; I could not eat; I could not rest. It was the texture of my life to think of the time that must elapse before we could meet again. But I was a fool then, and not much wiser now."

Scott* became very early a declaimer. At six years old he is described as having an astonishing appreciation of poetry. "He was reading," remarks Mrs. Cockburn, "a poem to his mother when I went in. I made him read on; it was the description of a shipwreck. His passion rose with the storm. 'There is the mast gone,' says he; 'crash it goes,' 'they will all perish.' After his agitation he turns to me. 'This is too melancholy,' says he, 'I had better read something more amusing.' And after the call he told his aunt he liked Mrs. Cockburn, for she was a virtuoso like himself. 'Dear Walter,' says Aunt Jenny, 'what is a virtuoso?' Don't you know? Why it is one who wishes and will know everything.' "

Scott's surroundings tended to create a healthy mental atmosphere in him. He had in every sense of the word

*Lockhart's Life of Scott.

several wholesome refuges. The picture he draws in "Marmion" fully illustrates this:

> For I was wayward, bold and wild,
> A self-will'd imp, a grandame's child:
> But half a plague and half a jest
> Was still endured, beloved, caress'd."

Independently therefore of the existence of a deformity which was the subject of popular contempt, Byron lacked one great aid to healthy growth as a child which was present in Sir Walter Scott. Byron's mother injected a fatal element of environment, since, as already pointed out, she did not, from her degenerate tendencies, spare the boy the sense of his deformity.

(*To Be Continued.*)

THE SANITARY SALVAGE OF OUR SOLDIERS IN CUBA.*

By MAJ. CHAS. H. HUGHES,

Late Surgeon 1st Infantry M. S. M. Vet. Volunteers.

ON Memorial day, May 30th, Major General Miles commanding the American Army now preparing for decisive action against the enemy, issued an order which most significantly represents the concern of this eminent American for the welfare of his men, and marks the often unregarded fact, that in war the health of the men as well as their discipline, is to be especially considered.

While enjoining diligent and zealous labor in perfecting discipline and high soldierly spirit and character, this order first of all requires that every officer of whatsoever grade will, so far as may be in his power, guard and preserve the health and welfare of those under his charge.

All honor to the general who looks first of all to the health of his men. This order marks the humanitarianism of our day and indicates advanced recognition of the value and rights of men in keeping with our high ideal of the value of men, healthy men, to armies and government.

*Read at the Midland Hotel, Kansas City, Mo., June 4th, 1898, at the joint meeting and banquet of the Loyal Legion of Missouri and Kansas, and by unanimous resolution ordered printed for distribution to all Kansas and Missouri troops now engaged in the war with Spain.

NOTE.–I think on a war footing, especially when campaigning or action is imminent, the medical corps of a regiment should be one chief surgeon and four medical assistants with rank of lieutenant colonel, major, captain and first and second lieutenant, with at least two hospital stewards, a chief and a second or a third, and the hospital stewards should have a knowledge of medicine and surgery, equivalent to that at least of a second or third course medical student. They should rank as highest grade non-commissioned officers, and young physicians should be eligible, by preference, to these positions. The commanding officer of a regiment going into action or coming out of one, shouid never have to concern himself for the sanitary welfare of his command. To be distracted with questions of aid or rescue, ice or water, bandages, nurses, food or medical or surgical supply or relief, is paralyzing to maneuver or promptitude and efficiency of action in the command, whether large or small. And the medical equipment of the regiment goes to make or unmake the efficiency for movement or action of the battalion, the brigade or the army corps.

This order will be not the least of the records of America's distinguished commander, when his history and that of this war shall have been written, which shall contribute to make his name immortal; of him it shall be said: "He cared first for the health of his men and he won battles and triumphant campaigns thereby."

In the spring of 1895 there went out from Paris the Two-Hundredth Infantry for Madagascar. Beaming with anticipations of a glorious campaign, the young soldiers composing the regiment seemed capable of any physical effort; robust, agile and merry, they appeared not only to be able to defy the efforts of any human foe, but also to remain invulnerable to the onslaught of a much more potent enemy; the noxious emanations of marsh lands and pools. The campaign was pushed with energy; but some months later every Parisian's heart was stirred to the utmost by the return of the same regiment, or, rather, what was left of it; a handful of gaunt, yellow "convalescents", several of whom were to soon follow the nine hundred and odd comrades who had preceded them in the other world. The human antagonist had been a myth; the subtile earth and water borne enemy had done it all. (Dr. Edward M. de Sajous' account in, *Monthly Cyclopedia of Practical Medicine*).

There need be little fear to our force in Havana if, with the daily preventive taking of quinine, a rigid rule is enforced by order from headquarters that our officers and men eat only thoroughly cooked foods (a good proportion of fresh meats from the mountains, interior and valleys and ripe fruits and vegetables brought hermetically sealed from the healthy districts of Cuba), and drink only drinks that have passed through boiling or distillation, sleep high from the ground and relegate the digging of the soil to the natives. There will be great fatalities without these precautions. The canteens of all land forces should be kept well filled with either coffee, distilled or crystal water or weak cold tea, according to the taste of the soldier for quenching thirst. The men should be warned and guarded by order from headquarters against Havana unboiled water, uncooked meats and vegetables, breads or fruits, the ripe fruits sold in Havana or brought

from there would not be safe. Add to this the selection of high, dry and drained grounds for soldiers' quarters and hospitals cooled by breezes blowing toward Havana and not from that pest hole and the mortality need not be great among an attacking party, even in the wet season. Springs near Havana are dangerous, but boiling destroys the danger. The far interior springs would be safe. A good arrangement might be made for quartering the men on boats in the shallow bays and inlets about Havana and Cuba and away from the localities of infection, till needed for action, and protected by batteries and gunboats. The army medical per capita supply of quinia, cinchona and salicin is too small. It should be increased a hundred fold and given to our soldiers night and morning as a compulsory ration, in eight or ten grain doses in pill form and in half the quantities at noonday at the discretion of the medical directors.

The humorous paraphrase of the sick call during our "late unpleasantness",

> "Quinine, quinine, quinine,
> Come and get your quinine
> Quinine and pills,

has more of scientific truth than humor in its composition and ought to be the order of the day in the "Queen of the Antilles" for the American soldier till Cuba is free. It should be set to music for the guidance of the coming generations battling for freedom where marsh miasma and general debility therefrom are more deadly than the enemy.

This lesson of the soldier's salvation was learned during our Civil war on the swamp soil approaching southern battlefields.

Plenty of quinine is quite as essential for the taking of Havana as parks of heavy artillery. If malaria is kept out of our troops, plenty of good cooked food and boiled or distilled water put in them, liquor excluded and ample sleep secured as far above the ground as possible, with the wearing of rubber boots enforced among the men, and nets supplied to keep off the mosquitoes, we ought to be able to go at once through the island of Cuba like a dose of salts through a dying reconcentrado, and stay there all summer,

restoring peace and a just government to the thousands of oppressed and starving and dying Cubans and avenging in the humanest of ways our men murdered on the Maine.

The elimination of malaria is essential to the success of all permanent military operations in tropical localities, Cuba, Porto Rico, the Phillipines, etc., as essential as good ordnance and ships in good fighting condition. Soldiers must be well to fight well, and well to hold on. The recent disastrous campaign of the French in Madagascar is a case to the point. Sanitary regulation should be a part of the army discipline and quinine in Cuba a part of the soldier's daily ration.

I had ample experience during the Civil war to confirm this assertion. As Surgeon in Chief of the forces from Kimswick to Ironton and Arcadia in 1862, during the first month (October) among the troops guarding eighteen bridges, sixty per cent. were down with dysentery, diarrhoea, pneumonia, congestion of the liver and the more distinctly recognized malarial affections, intermittent and remittent fever, etc. The army supply of quinine was only ten ounces to a thousand men. I asked for and received an order from the commanding general directing the companies to turn over to me their company funds; I went also to Mr. Yeatman, president of the Western Sanitary Commission, for aid, and through this gentleman secured for each blockhouse a good supply of quinine, salicin, cinchona, capsicum, etc., and whisky, and made a ration something like Warburg's Tincture, subsequently known to me and before or since famously known to the British Indian Army, only my mixture had more quinine and less of other ingredients. I had never heard of Warburg's mixture then. This mixture was ladled out to the members of each detail by a sergeant or corporal as they went on night guard and returned to quarters from guard duty, and given to all the sick in the block houses. In one month thereafter no soldiers were doing double guard duty because of sick companions and very few were on the sick list. They were all advised to carry coffee in their canteens also, and this advice was practically a company command in all the block houses.

In a recent circular the Surgeon General says: "In decidedly malarious localities from three to five grains of quinine may be taken in the morning as a prophylactic, but the taking of quinine as a routine practice should only be recommended under exceptional circumstances. Light woolen clothing should be worn, and when a soldier's clothing or bedding becomes damp from exposure to rain or dew the first opportunity should be taken to dry it by the fire or in the sun." While agreeing with him in regard to under and wet clothing, I do not agree with him in regard to the quantity of quinine. So little would not generally prove preventative of malarial disease in camp and I would begin the use of quinine nights and mornings two days or more before reaching a malarious district and continue its use daily during the soldier's sojourn where there is malaria. Experimental tests here show that about twenty-four grains of quinine are required in the system daily to render the (bodies of Laveran) malarial germs sterile.

Quinine fiends are better than quinine exempts for fighting Spanish devils.

Quinine fortifies the soldier somewhat for resistance against camp fever which is a typhoid, but here pure water is the soldier's safety and his right, as good food is. Typhoid and malarious and typho-malarial fever in our civil war was more deadly then the enemy's bullets. Pure water and plenty of quinine and pure food would have prevented this great fatality and inpediment to military operations in both Federal and Confederate forces.

There are good sanitary as well as strategic reasons in the enemy's country for soldiers on the march in marshy districts not singing but keeping their mouths shut. Breathing altogther through the nose brings the malaria germs in contact with the mucus of the nasal air passages. This mucus has the power to destroy them and thus to diminish the intensity of the malarial poisoning.*

*Extreme malarial poisoning is such as engenders fatal bilious remittent fever and malarial haematuria. Dengue and Yellow Fever have been regarded by observant southern clinicians of large experience as the same disease differing only in the degree of blood empoisonment and disorganization, nerve exhaustion and vital prostration. I believe myself that there is much plausibility in this view and that the bodies of Lavaran under morbid transfor-

A commanding officer lately ordered his men to bathe daily while in camp. This is a subject of judicious medical regulation. Men may bathe too much and too often and at the wrong time of the day in tropical or semi-tropical and malarious localities especially. An hour or so after sunrise or before sunset is the preferable time or between these hours in shady places during the day, but the afternoon of a clear day or after the succession of several clear days, when persisting sunlight has destroyed much of the malaria of the locality and given resistive vigor to the soldier, is the best time of all for general bathing and cleaning up in camp. Bathing should not be done immediately after an over-heating march, but before or after a temporary rest in the shade, when practicable. Apropos of this matter, men may be needlessly required to march too long at a time and at wrong hours for their health. This is pretty well understood in the regular army and the Surgeon General has lately made it the subject of a suggestion which should have the force of a military order in Cuba.

Marches should not end later than 10 A. M. or begin before 5 P. M. when practicable in Cuba. The forced march is only to be considered as an imperative military necessity, and the digging of trenches and making of roads should only be done by natives. Long forced marches are pernicious to the men and have ultimately to be paid for in cripples, sick, footsore and non-available men.

It is a crime against nature and nature always, sooner or later, catches and punishes the criminal. She demands her

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mation and changed soil are the germs of yellow fever. Whether this theory be true or not, however, does not materially matter. The fact still remains that blood, malaria free, gives us higher metabolism, better phagocytic and nerve center resistance and tends to secure immunity where, with malarial toxhaemia the power of resistance is annulled. The acclimated immune to Yellow fever is also exempt from malarial disease.

Certain Amoeba found in the cavities, one of the Amoeba-Bucalis found by the present Surgeon General Sternberg and by Grosse, on the teeth and the mouth of man, the Amoeba Colifound by Loesch in the Colon or lower bowel in dysentery and the later Amoeba found by Klebs in the upper bowel or duodenum of yellow fever patients, get into the system through polluted food and drink. The Ebert bacillus, the bacillus of typhoid fever, gets into the system in the same way.

These are the scourges of armies in tropical climates and under unsanitary surroundings generally. The remedy is obvious. Cook them to death. Feed the soldier well on well cooked food and let him live.

dues with unflinching persistence of officers and men alike, and the digging of Cuban soil is murder to our men. When practicable, also, roads recently made should not be used immediately. All this suggests also the rigid enforcement of regularity and temperance in the army; a subject too well understood to be farther discussed. What was once or is now only medical knowledge in regard to the soldier's sanitation should become general knowledge in the army. It should be one of the chief objects of a medical corps, viz.; to diffuse the best knowledge of the sanitation of the soldier among officers and men and the chief concern of the commandants to enforce the best sanitation. To promote the highest efficiency of the American Army in Cuba, how to take proper sanitary care of himself should become each soldier's possession by the oft imparting of the knowledge and he should, by order, be compelled to take as good care of his property as of his knapsack, gun or rations.

The care of the sick and wounded in battle is not all the duty of the medical corps in war nor of the commanding officer aside from valor, strategic service and military maneuver. The prevention of disease, and by that preserving the corp's greatest possible efficiency, is the highest preliminary to successful strategy.

For every man who falls under the enemy's bullets in battle, the strain and exposure of the march or the pestilence of the camp, a well man must take the place and other well men must be withdrawn for stretcher or hospital, to swell the non-combatant strength of the invalid corps, weakening the effective force in the front of battle and widening the worry of the commanders on march or field, on whose hands fall the direction of the military movement and responsibility of action and results. Napoleon said Providence was on the side of the heaviest artillery, and his faith and weakness were in artillery and heavy battalions alone. He rose at a time and continued rising when the people of France were in that high state of psychical exaltation which keeps off disease, and who were kept so by the oft repeated victory and conquest of his legions, till the illusion of a new nation founded on the rights of men had begun to vanish from

their minds, put his faith so completely in arms alone, that he braved to his destruction, the disastrous climate of Russia, without adequate provision for the rigors of a possible severe winter. Had his concern for the health of his men equaled his ambition and his strategic genius, he ought at his death to have been the military master of the world instead of the disheartened prisoner of St. Helena, dying of that loathsome disease which so often seizes upon and destroys the fallen great in their despair, disappointment and chagrin after defeat when consequent vital prostration sets in and the normal organic resistance is gone, with the high resolve and the proud and once successful, but now vanished, ambition.

When strong great men accustomed to success, who change circumstance to suit their strong resolves and vanquish their surroundings, become themselves the vanquished victims of circumstances they can no longer control, they weaken and fall victims of disease, as fell our great Grant under the mortification of the Ward failure, and our great Benton under the depression of political reverses and popular ingratitude and all under the same malign disease that destroyed the great Napoleon. The great vitality that fought and won great campaigns could not fight off death, because it could not resist the invasion of its advance microbic forces as in the days of greater vitality and victory. And so armies, defeated and without hope in a campaign, fall victims to a disease which armies of men flushed and buoyant with triumph escape, at least for a time. To maintain the buoyancy and efficiency of men on the march or in camp, they must be kept well, in the routine of the barracks. They must be kept, not only from the weakening dissipations of camp life, but from the enervating effects of undue dampness on their bodies, undue exposure in the night time especially, and the poisonous weakening influences of malaria, that they may imbibe to the full from their environment, when occasion for action offers, the stimulating influences of hope, valor and victory, which always increase and stengthen resistance to the invasion of disease. What medical men call the *vis medicatrix naturae* (the curative

power of nature) is as essential to the soldier as the *vis armis* in the field is, to the commander of battalions.

Napoleon proposed to Baron Larrey, his distinguished Surgeon in Chief, to dispatch his disabled soldiers by euthanasia. The veteran chief of his medical staff made the glorious response that the mission of his profession was to save and not destroy. Had the great "Little Corporal" of destiny considered the salvage of his army's health throughout all of its career and especially before the march on Moscow as much as he regarded the glory of its arms and his own ambition, his fate might have been different.

There exists among some officers of the army a disposition to underestimate the medical staff, more especially in the British Army; to regard them as non-combatants of little significance to the welfare of an army or the fate of battle, especially does this mistaken view prevail in our navy to the detriment of the general service, by keeping out of the medical corps the best men, who, if capable in the medical department, would be capable in any sphere of action.

The medical officer foregoes the opportunities of action and denies himself the chance of promotion under fire, restrains himself and keeps courageous and calm in trying circumstances of danger both on land and sea, when to be in line or at the front of the action would be more in harmony with his human nature and soldierly ardor at such a time. He does his duty wherever the exigencies of the service place him, whether under fire or in temporary or permanent place of safety. In proportion to their number, proportionate to the other officers of the service, as many surgeons fall or are rewarded for gallant conduct in action as among the other officers, more especially in some campaigns in the British service of late. To secure the best efficiency of this indespensable arm of the service, the rank of the medical officer should be equal or nearly equal to that of the best officers in the service apportioned according to the degree of responsibility and merit. The Surgeon General of the American Army should rank as a Major-General instead of a Brigadier, and subordinate medical officers

should be proportionately ranked down to Second Lieutenant or plain Mister. Then Uncle Sam would find always the best medical and surgical talent aspiring for places in the medical corps. Then the medical staff would achieve honors in saving our men for action, as our guns did at Manilla in accomplishing the enemy's destruction, yet it was Dewey and not alone his guns that did it. The quality of the American Army Surgeon is as important as the quality of our guns.

A high ranked medical corps, readily promoted for meritorious service, honored and respected accordingly, would contribute more than any other one thing save efficient discipline and arms, to make the most valiant army in the world, what every patriot lover of our flag wishes to see it, the most invincible on the field, whether fighting for humanity on Cuba soil against Spain or for justice and right against combined and haughty Europe in any contingency that may arise out of this just and imperative war.

There are hills in Havana province and higher ground around about Santiago and elsewhere in Cuba for our army to camp on, healthy with fresh air and pure springs of water, and air and water all over that island, which destiny now places forever under the protection of our flag, and we can get to the high ground even in the rainy season, besides science can make Cuba water as pure as the valor of our armies will make Cuba free and when we get there Spanish and American life and liberty will be made equally safe. Let us make a sanitary campaign of Cuba. A campaign of physical and moral sanitation for that oppressed land now dedicated by our flag to freedom.

I am talking now to men, all of whom have seen service and learned the value of men, all of whom have seen occasions when the supply was not equal to the demand, if a commercial expression on this military article will be pardoned, when but for the sick list and the men out of the ranks for disability, things might have been done that had to be postponed. I am talking to men who now know, if they did not then, that a defective medical and quartermaster's department or a tardy commissary, may impede

action, arrest movement or change the issue of battle. I am talking to men who have seen a large proportion of a fine body of raw re-inforcements changed in a day or two to helpless hospital subjects or half fit for duty invalids through sanitary ignorance of the men and hastily picked inexperienced volunteer surgeons from civil life. Tents pitched on untrenched ground and weary men falling asleep or awaking on wet ground (without rubber blankets) which might easily have been made dry, falling asleep wet and chilly without a camp fire, when no enemy was near and no concealment was necessary, going to sleep hungry when food was not lacking, drinking the polluted water of malarious camp drained streams and committing all sorts of those unsanitary indiscretions which precede the funeral march. All of us saw these things with sorrow during our army life and learned from the aftermath how essential to the success of a compaign or to military work of any kind is the sanitary salvage of an army. We learned lessons of temperance in matters of carousal when off duty and of common sense in securing sleep whenever we got a chance and duty permitted.

Salted meats should be liberally mixed with fresh meats whenever practicable for the soldier's diet.

We learned that the chief value of the medical staff to an army was not alone in taking care of the *hors de combat* and getting them out of the way of the enemy but in helping the men to keep well, in selecting salubrious situations for quarters and camps, in the supervision of their food and drink and sometimes in supplying salutary food and drink for the officers, when, watchworn and weary with the duties of the field, they had to repair betimes to the surgeon's headquarters for repairs and found only such spiritual consolation then as the surgeon could afford in such an emergency.

The good surgeon to an army in action or trained down to the real business of war is the most valuable of the miscalled non-combatant force, for he is as much a combatant as an adjutant general, an adjutant or an orderly, according to his sphere and rank. The medical director of an army corps should have the capacity to comprehend and

anticipate the mind of the general in command and be his best auxiliary officer in all but the movements of the field. The demands on the Surgeon-General are far less of a routine character than those upon either quartermaster-general or the commissary-general and require a greater training and knowledge. Unexpected and uncertain quantities are constantly encountered in the Surgeon-General's equasion and in those of the under ranking surgeons. A good medical corps may make victory a possibility or, defeat a certainty. Men, effective men, make an army. They are as essential as munitions of war, as necessary as efficient and valorous officers. An efficient medical corps provides and maintains these. The same sanitary watchfulness as exercised by the government concerning the soldier at enlistment should follow the soldier or seaman throughout his service.

This is not only a duty to the soldier. It is a duty we owe to the honor and glory of our arms, and this effectiveness in the service can best be promoted by offering to our medical staff such governmental incentives to proper consideration and rank as will invite and keep the best medical talent and skill in the American service on land and sea.

There should be no flies on American soldiers, I mean Spanish flies, Mosquitoes, etc., of Havana. There are none on him at home and it should be our business to keep them off him there. They carry germs of microbic contagion, the diseases of animal and vegetable decomposition and of animal and local infection. This suggests attention to what we learned about the digging and locating of sinks to leaward of the prevailing winds, away from the camps, far from and below the source of nature's water supply, and when practicable before the camps are occupied, and the locating of camps on previously unoccupied high ground picked and adapted to drainage in a direction away from the water supply. A little carbolated oil, a roll of rubber adhesive plaster and pills of quinine and capsicum, should be in every soldier's knapsack and he should know how to use them and be required to use them when and where their use is necessary, as he is required to conform to other regulations. Carbolated oil on a recent wound sealed with adhesive plaster till sur-

gical aid comes could be applied by any soldier, and would contribute to prevent septic infection.

First aid to the injured should be taught the soldier in his manual, as this subject is taught the police force in our best police governed cities.

If Havana is taken before next winter, no effort should be made to land any but immune troops in Havana harbor. This harbor is a stagnant pool of the city's filth, accumulated for centuries, which the ocean winds and tides do not renovate.

The records of the quarantine station [Surgeon-General Wyman's Report, U. S. Marine Hospital Service] on the South Atlantic and Gulf coasts for 1894, show 11 cases of yellow fever, all taken from vessels arriving at the Dry Tortugas station from the wharfs in Havana. Two of these wharfs, the Tallapiedra and the San Jose, are especially dangerous. Under the Tallapiedra empties the sewer from the military hospital, where the yellow fever patients from the army are treated. No vessel with non-immune crew on board has ever been tied to this wharf with out yellow fever appearing among them. So well known is it as a danger point that sailors call it "Dead Man's Hole," and so great is the danger of tying up to it, that captains of American vessels have been known to pay for the privilege of discharging cargoes on lighters in the open bay. American captains have frequently asserted that the United States Government should not allow vessels to go to this wharf. Sanitary engineers have repeatedly shown that these conditions are wholly unnecessary. That a reform of this kind is practicable seems to have been demonstrated in the experience of Vera Cruz, whose harbor was almost as great a menace to the U. S. as Havana. With the great engineering changes at Vera Cruz, brought about under the leadership of President Diaz, the disease has been practically wiped out in that city.

The practical problem that confronts us then, is how to take Havana without taking her pestilences. Only immune soldiers should go in at once through Havana harbor. Non-immune soldiers should approach the city from other direc-

tions and be taken there in the best of health.*

A healthy, disease-proof soldier is more than big guns to our righteous cause. Guns are best manned, aimed and fired by healthy men. Vigor and valor are twin forces in war, and strength of mind and men go together in battle. A large sick list is as fatal to success as a scant supply of guns and ammunition. Available powerful healthy men are as potent as heavy artillery. Glistening sabres and plenty of them carried with the courage of well nourished and consequently strong armed, well nerved men, are resistless in critical moments, unless the enemy meets you with better nerved men, and more of them. The courage of a brave man is sustained by the health of his nerve centers. Feed him ill and let disease attack him to such a degree as to undermine the nutrition of the higher centers of his brain and indecision and despondency supplant dash and courage; despair and gloomy foreboding take the high place of ambition and hope, and the strong volunteer, who but yesterday wanted to meet the enemy with courage to dare and die, now wants to go home. He is not content to be only taken to the rear for repairs, like the lusty soldier or sailor who has fallen in action in the flush of manly health. Nostalgia, so intractable to army medication, seizes him and he must be sent home or if kept away from home he pines away and dies. The soldier wounded in battle is a different man from the soldier taken gravely sick in camp or on the march. The courage usually abides with him though wounded, but the sick man fallen out of the ranks has been gradually undermined until the citadel of his courage, his nerve centers, are taken by an enemy within him. The spirit of the sick soldier surrenders more completely than that of a wounded man.

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*A proposition for the Surgeon-General to consider would be that of immunization by yellow fever inoculations, an experiment yet too far *sub-judice* in medical circles to justify attempts on a large scale, as the process mignt weaken the force without certainty of timely immunity. Yellow fever inoculations are not yet so definitely understood or universally approved as small-pox prevention by vaccination.

A sanitary engineering problem worthy of immediate attention, so soon as the city might be captured, would be the turning of the sewage into other channels and the cineration of the city's offal. I have referred to the danger of our men digging Cuban soil and trenching Dr. Chas. E. de M. Sajours quotes Director Maurel on the subject as follows:

"Europeans must not attempt to work the ground in intertropical regions, it is death to them, but it does not injure negroes or other natives." Here is a suggestion. Our army should have a goodly supply of these immunes for this sort of work.

The best place for the seriously sick soldier in Cuba is away from the field of action. The wounded man may lie on the hills or in a sanitary harbor until he recovers, with hope inspired by the sound of our victorious arms.

Size and weight of metal considered, the healthy American soldier is a more effective field piece in action than any mechanism of man's contrivance. He is the most delicate, the most adaptive, the most effective of all the mechanism of military strategy, for every conceivable position of action. In the contemplation of our big and rapid fire guns, our armor-clad ships, Monitors, Cruisers, Torpedo boats, submarines, torpedo boat destroyers, bomb proofs, giant explosives, machinery for sighting the big guns and firing them, and all the masterly mechanism of our modern navy, we should not forget that, after all, the American soldier is the chief thing; the well nerve toned, strong brained, able bodied American soldier. He is a delicate but powerful piece of machinery. His smoke stack and air flues (the lungs), his furnace (the stomach), his waste pipes (the kidneys, sweat glands and bowels), his delicate but powerful armor (the skin), his steam power and refined fuel supply (the blood) and his brain and spinal cord (the centers of power, sensation, movement and thought) whose intense potencies of action, energy and contrivance possessed by no machine man ever made, are perfectly adapted for every purpose of peace or war, if kept in order. Let us take the best of care to keep this most effective fighting machine in the best of order that it may march to the music of a triumphant humanity, and the glory of freedom's starry banner, whose pride is in her men; vigorous bodied, valorous men who make a nation great, strong, high-minded men who hold a nation's fate, men who man battle-ships, make big guns and fire them straight and true; men who man ships and sink the ships of the enemy in the Dewey morning before breakfast, men who make invincible battalions and intrepid seamen, healthy men, vigorous men, valorous men, because strong nerved men, who have the strength and the will to fight for humanity while not forgetting to "Avenge the Maine" in humanity's name and in the name of our outraged flag!

Successful modern war is not recklessness and dash and unconcerned, unestimated sacrifice of men. It is calculation, courage, consideration of resources, men as well as munitions, and their judicious expenditure for best results.

War is business for the cool head, the calm judgment, the courageous heart, in which brain with bravery and humanity wins, where only bravery, without the other attributes of the true soldier, fail.

How many said after the battle of Wilson's Creek, "Oh, if our Lyon had not so recklessly exposed himself and fallen, we need him so badly now, and on every battle field of the south." Oh, if our boys could have escaped the unseen foe of the marsh and camp to help us fight. And now there goes out from us one who has lived through many battles to fight again for his country. *We know how bravely he will bear himself where danger threatens or death demands. We can give up our general, whom the government has honored while honoring itself and us in selecting him, as he will bravely give his own life as we know, if it may please the God of battles to let him fall facing the foe. But Oh! to have that life stealthily stolen from him and us by the insiduous foe that lurks in the lowlands of our enemy's soil would be a sacrifice which even those "born and nursed in dangerous paths" would feel it hard to make. Let us save our men to fight and if need be to die in the field, but not to perish of disease.

ADDENDUM.

THE "NON-COMBATANT" FALLACY.

Perhaps no better illustration of the fallacy of stigmatizing medical officers of the army as "non-combatants" is afforded than the following, quoted from the *Illustrated London News* of May 14th: "Surgeon-Captain B. H. Scott, of the army medical staff, who was severely wounded while taking part in Major Norris's march between Karene and Port Lokko, had been on the West Coast of Africa but a

*General Nelson Cole, of St. Louis, promoted from Captain to Colonel in the civil war for distinguishing bravery.

couple of weeks when he was dispatched as medical officer to the expeditionary force under Major Norris. He had previously seen active service with the Chitral Relief Expedition. Surgeon-Captain Scott's wounds were unhappily very severe. The bone of his left thigh was broken, and a bad flesh wound over the heart added to his sufferings, yet he behaved with the utmost courage and self-sacrifice, and as the only medical officer of the force insisted on removing many bullets from the wounded soldiery, and otherwise alleviating their distress, while all the time he himself had to endure a painful journey of three days' length before he could obtain medical relief. He is now on his way home, and it is hoped that by means of the Röntgen rays he may be relieved of the bullets which have not as yet been extracted from his wounds." Surgeon-Captain Scott belongs to a foreign service and is of foreign nationality, but he is a doctor, and when we add that this expedition was rendered necessary on the part of Great Britain to punish the murderers of the Rev. J. N. Cain and Mrs. Cain, Miss Archer, Miss Hatfield, and Miss Schenck, all, it is believed, of the American Methodist Mission, we do not think any apology is needed for using his case to enforce our contention of the fallacy of stigmatizing medical officers as non-combatants.

THE INCREASING RECOGNITION OF THE SERVICES OF MEDICINE TO THE STATE.

The New York Medical Journal says:—The banquet given on May 4th by the Lord Mayor of London "to meet the president of the Royal College of Physicians, the president of the Royal College of Surgeons, and the members of the medical profession" at the Mansion House is a unique incident, and one of very great significance in the social evolution of the age. It is, we believe, the first time in the history, not only of England but of any country, that the profession of medicine at large, and as apart from some special occasion—*e. g.*, the meeting of an International Medical Congress, etc.—has been singled out for a public honor by way of marking official and public appreciation of

its importance to the entire body politic. It is significant in the far-reachingness of its invitation and attendance. Physicians with title, and physicians without, the leaders of the profession in England and their obscurer but no less worthy brethren, the presidents of the great colleges, corporations, and universities that hold the honor of the profession in their hands while acting as gatekeepers to the Temple of Æsculapius, the heads of the medical services of the British army and navy, all were there; and "to meet" them, as the invitation read, came Lord Russell, of Killowen, Lord chief justice of England, the Marquis of Lansdowne, secretary of state for war, members of both houses of Parliament, of the Corporation and County Council of London, and the chief magistrates of many of the leading provincial cities of England, with other public personages of rank and importance. It is perhaps the greatest testimony on record of the growing recognition by the nations, through their official representatives, of the high place now being assigned to the medical profession in its corporate capacity as a servant of the commonwealth, and no longer merely as an aggregation of men who individually make their living by a business of a more or less quasi-philanthropic character.

The public importance of the medical profession to the commonwealth at large in its struggle against the force of Nature can not surely be better stated than by adapting the words of Lord Lansdowne, when extolling its importance to that specialized portion of the commonwealth whose part it is to act for it in the struggles of nations. He said:

"There is no department in the public service which owes more to, and depends more upon, the members of your profession than the army. In time of peace it is you who teach us how to maintain the health of our troops and to combat the diseases which they have to encounter in the various and often trying climates which prevail in different parts of our ever-increasing empire. In time of war you do something to correct the barbarity of our methods and to mitigate the nameless sufferings which follow in the wake of great battles. Your skill and devotion are the correctives of our modern ruthlessness, and I think most of us

will say that, if we had to choose between the credit belonging to the artillerist who has, let us say, invented a new form of dum-dum bullet, and the credit belonging to the surgeon who has contrived the means of extracting it painlessly and saving the shattered limbs, we should not hesitate in deciding whose part we should prefer. I am using no idle phrase when I say that the army is proud that it contains a number of officers who belong to the medical profession, but who are none the less soldiers in the fullest sense of the word, wearing the Queen's uniform, holding her commission, ready to take their share, aye and more than their share, of the risk and hardship of warfare."

MEDICAL SERVICE AND MEDICAL FEES.*

THE BUSINESS SIDE OF THE PRACTICE OF MEDICINE.

By C. H. HUGHES, M. D.

President of the Faculty and Professor of Psychiatry and Neurology, Barnes Medical College, St. Louis.

OUR present medical fee bill seems to operate mostly for the benefit of surgeons and obstetricians and not always so well as it should for them. Extra charges are provided therein for special operative skill and valuable medical counsel independently of a manual service, but nothing for the associate counsel and service of the physician assigning the case to the surgeon, preceding in the diagnosis and advice that brings the relieving operation, whereas the extraordinary judgment and service of a long experienced medical man of clinical advantages and wide repute, even without a written prescription, are often quite as valuable as the surgeon's skill and sometimes of more service, for the well-skilled physician may have resources which may render operative procedure needless, as such skill may also promptly decide for surgical interference in time to save life, when an incompetent surgeon with inadequate clinical experience, would defer necessary saving operative procedure too long, as often happens, especially in early developing cancer, in true appendicitis, calculus nephritis, gall duct obstruction, brain and cord injuries, pus formations in the great cavities and states that tend to their production, or operate too soon or needlessly. On the other hand,

*A paper read before the St. Louis (Mo.) Medical Society, March 9, 1898.

a skillful clinician who wisely and timely differentiates a circumscribed enteritis or peritonitis or an appendicitis, or between an irritable ovary and a salpingitis and averts a needless and unwarranted opening of the abdominal or pelvic cavity, is entitled to pay for his skill as much as the merely operative surgeon. The surgeon, also, who safely saves his patient from the pain, apprehension, loss of time, inconvenience and expense of a great operation, should be compensated well for his conservative, as well as for his destructive, skill. To avert an avoidable operation with safety to the patient requires greater ability than the skill simply to operate.

He should have something more than the stereotyped pay for visits, and visits should be paid for according to the time taken, the risks run and the skill required, otherwise there is little but a fair subsistence for self and family in the physical capacity of the physician in general practice, whereas every faithful physician, ever true to his trust, foregoing the usual pleasures and diversions of life, burning the midnight lamp for kowledge and skill and braving the midnight storm for the welfare of his patients, should be able, invariably, to retire with a fair financial competency after a life of average duration thus spent in the unprecedented devotion of medical practice. In no calling are men so completely slaves to duty as in that of practicing physician and in none should the recompense for service be higher. It is our own fault that we are paid so little, proportionately to the pay of other high callings, that of law for instance, for what we do. Lawyers, real estate men, civil engineers, expert appraisors, auctioneers, architects, etc., are paid according to the interests involved. We often save lives of great usefulness and great financial value to their possessors and are expected to get about the same for every case, except when charity is pleaded in bar and then, unlike the merchant who makes simply the concession of goods at cost, we are expected to give all for nothing. We are asked to discharge entirely in this regard, the charity obligations of our well-to-do patrons and the clergy and treat their poor kindred and parishioners for

nothing, often including themselves and their families and poor kindred, besides our own more immediate duties in this respect, such as caring for the once well-to-do, but now unfortunate, clients and the poor brethren of our fraternities, when no one else gives them all in their line. Imagine a merchant giving his goods entire or a merchant tailor, complete suits of clothing to all his poor kindred, all the poor kindred of his paying customers and of his parish priest or church preacher's indigent acquaintances, besides the holy men themselves and their families, and his own immediate circle of charity, and the robbery of the cheap syndicate fifty-cent hospitals and the free college dispensaries which treat the well-to-do servants of the rich, their house-maids, cooks, coachmen, etc., to say nothing of those unworthy rich who filch for nothing the honestly intended charity of most of the better medical colleges and the country farmers who pay taxes, sent to our city college clinics and eleemosynary institutions for free treatment.

Add to this the just medical demands of our own immediate families, those of our professional brethren and their families, and the just and unjust expectations of our more remote kindred, the cousins, the uncles and the aunts of the doctor, and you have a burden of gratuitous service for him to carry quite sufficient in men of large family connections to tax his energies extensively. And to this may be added the unjust indirect robbery of his practice by the police force of a large city taking every emergency case to the city dispensaries and hospitals and their gratuitous treatment at these places till they are recovered, though they are able to pay and should be compelled to select and pay a private physician, and the burden of gratuitous practice and unjust robbery of their due, becomes greater than any good natured, long suffering body of men should carry in the fraudulent name of sweet charity. It robs them of their substance and of length of days with no sufficient compensation for that stage of decrepitude when the cunning hands tremble and the feeble knees of the bent form of even the medical man, who is supposed to be tough enough to stand

anything, smite together and he can no longer work for his daily sustenance.

Brethren of our noble profession, I was about to say noble charity, as so many of the world's people are coming to regard it, imagine, if you can, what are now the chances for financial success in our calling in the ordinary practice of medicine.

Look at the ordinary organization of most, even our best, hospitals. The business man bestows a little in goods or money once a year and, if a director, a few hours of his time free, but the members of the medical staff give all their valuable time for nothing and in our eleemosynary institutions our young men, after a long, expensive course in medical instructions, take their pay from these public institutions, supported in part, perhaps, by taxes on their own or their fathers' property, in experience. We carry all these burdens of charity because we are fools, and we are fools that we do not rightly estimate our skill, the product of toil and sacrifice made by no other men in the world. If, with a reasonable degree of unanimity, those of us who are independent enough to do it, would demand higher recompense for medical service, besides surgical service, the ratio of pay for the less independent in our ranks, which people would, in consequence, be willing to accord them, would be great enough to make more men independent and justly appreciative and properly exacting of the monetary dues for labor done, and there would be a salutary uplifting along the whole line in the profession, since charity doctors would be fewer, cheap hospitals would flourish only for the really poor and needy and well rendered medical services would go at their proper value, and the doctor would be more generously rewarded in every sensible community. We have become the great dispensers of charity in every locality, not only upon our own volition, but at the command of others. We have become so charitable, directly and indirectly, in our ministrations that many look upon medical men as a self-supporting class, or mysteriously held up by invisible supports, for they never think to offer him the props whereby his house doth

stand, but rather take them away, by ignoring or disputing and cutting down his just claims for recompense.

The evil has been attributed to too many doctors. But there are not doctors enough of the right kind, and people have not been taught when and how to employ doctors or how to recompense them as they should. The average citizen waits till he is prostrated by an advanced and advancing malady, especially in disease in its less painful and acute forms, before he consults the medical man, whereas people need medical counsellors as business men require legal counsellors and should employ them in the same way to ward off impending harm, conduct them comfortably through a lengthened business life and save them before irreparable damage comes to them and inevitable death impends.

Doctors would have much more to do and undertakers much less if people were as wise and prudent in the timely employment of medical advisers as they are in other matters.

People, for instance, do not wait till death impends or a fire destroys their house before attempting to secure insurance, yet many otherwise prudent people never call a medical man till grave illness has prostrated them and Nature lays them flat on their backs and issues her mandatory summons for the doctor, the clergyman and the undertaker often at the same time. We are of the class classed by Carlyle as mostly fools. The world needs much more medical counsel than it seeks or gets and if medical advice were more costly at its highest sources and medical service were more highly esteemed by those who possess the best and have the financial ability and independence to demand adequate pay for it, the whole profession would be advanced financially and in public esteem. We would not then see so many old men in the profession as now compelled to drag along at their calling for sustenance, or dying, leaving pitiable dependent families. A high and arduous calling like that of medicine is entitled to far higher public appreciation and reward than it receives. A few decades of such service should secure to every truly devoted, industrious and competent physician a competency

for himself and his family and a fair financial providence after his death, for the wife and children dependent upon him.

Doctors do not make the money the people think they do. Though the successful doctor does a large practice, as the saying goes, he does much of it, as you see, for no pecuniary reward, though he, doubtless, gets credit for his charity before the Great White Throne in Heaven. He lives in close touch, especially the country doctor, with the plain people and all the people. He is their friend, adviser and confident, even as the parish parson is, and he is the close friend and counsellor even of the clergy. His calling requires him to do much more than prescribe medicines. Following in the footsteps of the Divine Master who went about doing good, he often helps his brother, the minister of Christ, to heal the wounded in spirit and the broken-hearted and in a double sense bindeth up their wounds.

Though the doctor generally makes a good appearance in many communities, he must practice rigid economy to do and rightly maintain and rear his family, because of these annex duties of his calling which bring no money. His calling can never, in the nature of things, be exclusively a business, and it is thus that his heart often gets the better of his business judgment and he suffers. The important thing to do is to justly and wisely draw the line around duty and dues, and bring them closer together.

The country doctor must live in a good house, welcome and comfortable in its appearance, presenting a cheerful, health inspiring aspect to his patrons. His rig should be good, well kept and swift. An atmosphere of happiness, health and prosperity should be about and good cheer should shine forth from his person. His office should be cheerful, restful and inspiring and neither at the top of a high flight of stairs nor in the basement. The best for light and comfort and most easily accessible rooms in his house, if at his house at all, should be the place where he receives and ministers to his patients; and his dress should be as becoming as his manners should be gentle and good. His equipments and his library should be the best that the rapid

advancement and multiform resources of modern medicine require. These matters and considerations require money outlay on the part of the doctor. Who shall provide them? Must he inherit wealth and have an endowment to practice medicine or should his patients of means provide them. He relieves the rich of the burdens of their poor. He should relieve them of their surplus, as well as of their sufferings. The fee bill should be adjusted to the full value of the service to those who have ample ability to pay for it; moderated for the simply well to do wage earner and concessions made all down the line to misfortune and poverty, even to the absolute free gift of advice and skill, but our charitable services should be restrained so that only the really worthy would get them absolutely free. In most instances the doctor, like the merchant, should share his goods (but not give all) with the poor friends of his wealthy patients.

There is a business phase, as well as a charitable aspect to the practice of medicine. It is the calling whereby we live, though this feature is often overlooked by us and our friends. Let us not therefore obscure our duty to ourselves and to our families in the practice of our profession, that we and they may suffer thereby. The suffering of the world appeals to our sympathy, overshadows us and submerges sometimes our duty to ourselves and our own, and causes too many physicians to leave their families destitute. We cannot ignore suffering or refuse to relieve it when it comes so obtrusively in our way, but we can protest against the rich and well-to-do throwing the burden of ministering to the sick altogether on us and partly remedy the evil and relieve ourselves of carrying the whole burden by including in our charge to the rich at least a partial estimate of this almost overwhelming burden of medical charity falling too unequally and too unjustly because too exclusively upon us. While the poor sick are always with us, we must take care of them altogether as we have done up to date, if the pecuniarily capable will not aid us; but if we are to continue to carry *in toto* this burden which ought to be divided with us by the rich, we can at least include a part of this burden of charity, which should be a common,

instead of an exclusive, one on us, in our estimate of time and skill rendered to the rich. We get our experience in our earlier days largely from the poor which may be recompensed to us if we do our duty to ourselves in charging the rich for service and skill acquired at a time of life in our professional experience, when the rich would not employ us.

The remedy and the rescue, gentlemen, is with ourselves. We are the architects of our own fortune as we have been the the authors of our misfortune. We talk only science or medical politics in our societies, mostly science, mingled, in our national reunions, with recreation; let us also mix therein a little business and common sense self-preservation sentiment. I have a high regard for my profession, its glory and its honor, but I have a sympathy and a deep concern likewise for the welfare of my medical professional brethren, and I say, from a financial and personal interest standpoint, we are mostly fools in our estimate of the value of our services, and I count myself likewise one of the fools.

Had I the making of a new fee bill for Physicians and Surgeons, I would have it read about as follows, for one major set of items at least:

For ordinary routine service in regular hours of practice in office	$ 2 to $ 5
" preliminary examination in office	5 to 50
" ordinary routine service at visit in city	3 to 10
" first visit and examination, in city	5 to 20
" time of subsequent visits selected by physician	5 to 10
" time of subsequent visits selected by patient	5 to 50
" visit during regular office hours	10 to 100
" special service in office	5 to 50
" special service at visit (visit extra)	5 to 50
" extra time given in office consultation (per hour)	10 to 50
" extra time given at visit (per hour)	10 to 30
" medical counsel as to consultants, sanitariums, travel, prescriptions for voyages, etc.	5 to 50
" medical counsel during or after convalescence	10 to 50
" extra risk, extra knowledge, extra resources, etc.	10 to 50

" certificate of insanity according to purpose in view, form of insanity and risk of prosecution involved, as in the probate of wills, committing to asylums for the insane, or the conduct of cases in court $50 to $500.

" attendance in court as expert $50 to $200 per day, mileage extra. Expert opinion in office $50 to $300.

Time away from home, time in court as expert witness and expended in promoting prompt recoveries, secured by unremitting arduous attention, night sacrifices, losses of entire business hours or days, should be duly estimated and the value of the physician's time and service should be measured by his average receipts and losses elsewhere, while doing a particular service.

The wide or narrow repute of the physician or surgeon for special skill should also be added to every estimate of service rendered in particular cases.

In the case of wealthy patients, the value of time and life saved them to their business and their families, should be duly considered in every bill rendered to them, and a percentage added to their bills, as in sales of real estate, law, or expert service of any kind, as salvage percentage to the bill rendered.

We should imitate our friends, the lawyers, and learn how to itemize properly, so as to convey a correct impression upon our clients and the community. Instead of that we let the impression of our service value be made by the quacks, the newspapers, and the disgruntled and inappreciative generally, including sometimes our worthy friends, the lawyers, and the courts, and even the clergy, who of all people on this earth should be the most grateful and reciprocal of mortals toward us.

SELECTIONS.

CLINICAL PSYCHIATRY.

EARLY DIAGNOSIS OF INSANITY.—Early diagnosis is of the highest importance—not detailed differential diagnosis, but simply early detection of mental unsoundness. Has one to minister to a mind diseased, with a train of deceptive manifestations obscuring the truth, or with actual, tangible morbid conditions of the body, or with real extraneous relations, on the part of the patient, to other people and things? That is the first question. Insanity is a condition, due to disease, in which the faculty of judgment ceases to be guided by the experience of the individual in appreciating or accepting or directing or controlling or applying the operations of the other mental faculties in part or whole. In every case the individual should be fully studied, in order to determine what his mental action would be normally under given conditions—in other words, his normal mental experience. Failure to apply experience deliberately or automatically as a guide to action is a departure from the normal, and indicates morbid mental conditions—insanity. I know of no better guide in diagnosis than this rule, and, in a long association with the insane, have found it to be universally applicable. It matters not whether the person be congenitally defective or of the highest type of development. Insanity may be superadded to idiocy, and so may it disturb the most highly wrought mind. In either case an abdication of normal experience from the control of mental function, in whole or part, is the pathognomonic sign. Lack of apparent reasonable motive for acts or thought expressions is evidence, *prima facie*, of mental disease, and this rule suggests, in my judgment, the best primary test; but it

is important that what would be reasonable to the individual in his normal state shall be used as the standard in any given case. The influence which unsoundness of body always exerts on soundness of mind must always be considered and used as a side light on the main question. Undulations of mental tone, due directly to somatic depression or excitement, must not be taken for insanity. A broad application of the forgoing principles will be a safeguard against any such erroneous conclusion. But, on the other hand, there are many morbid conditions of the body which do exert a most decided influence in causing true psychoses.—Dr. Jos. G. Rogers, Ph. D., M. D., Med. Supt. Ind. Hosp. for Insane, in *Ind. Med. Jour.*

HISTORICAL PSYCHIATRY.

OVID A NEURASTHENIC.—A recent book in German, published in Vienna, analyzes Ovid's letters to Augustus from his exile in the Caucasus, and points out that the worry of Imperial disfavor, the hardships of his life in banishment, and the changeable climate of the shores of the Euxine, so different from his native Italy, had caused the development of that train of symptoms we now know as neurasthenia. Hence the hypochondriac complaints and the unmanly appeals for recall. The book will be likely to restore the poet to the good graces of many who have always found this period of the poet's life so unamiable.—*Philadelphia Medical Journal.*

A MIXTURE FOR EPILEPSY.—The February number of *Pædiatrics* gives the following:

Sodium bromide	60 parts
Sodium bicarbonate	75 "
Tincture of physostigma	25 to 50 "
Water	500 "
Saccharin	1 part

M. Dose, a tablespoonful, diluted with water, morning and evening; after four days, suspend its use for three days and then begin again.

ANTIKAMNIA ABROAD.—J. Stewart Norwell, M. B., C.

M., B. Sc., House Surgeon Royal Infirmary, Edinburgh, Scotland, highly commends our St. Louis preparation as a specific for almost any kind of headache and gives a number of good reasons in "Medical Reprints" for preferring it to other coal tar derivatives and compounds for the same trouble.

NEUROTHERAPY.

AMYLOLYTIC FERMENTS.—In an article on this important subject Wyatt Wingrave, M. R. C. S., Eng. (Assistant Surgeon to the Central London Throat and Ear Hospital), in the London *Lancet*, May 7, 1898, we are informed of a personal necessity that arose in the writer's experience for a reliable starch digestant. A crucial comparative examination was therefore made of many malt extracts and of Taka-Diastase, the tests being conducted both chemically and clinically.

He summarizes briefly: 1. That Taka-Diastase is the most powerful of the starch or diastatic ferments and the most reliable since it is more rapid in its action—*i. e.*, "it will convert a larger amount (of starch) in a given time than will any other amylolytis ferment." 2. That Taka-Diastase seems to be less retarded in its digestive action by the presence of the organic acids (butyric, lactic, acetic), and also by tea, coffee and alcohol, than are saliva and the malt extracts. This is an important point in pyrosis. 3. That all mineral acids, hydrochloric, etc., quickly stop and permanently destroy all diastatic action if allowed sufficient time and if present in sufficient quantities. 4. That Taka-Diastase and malt diastase have, like ptyalin, no action upon cellulose (uncooked starch). All starch food should therefore be cooked to permit of the starch ferment assisting Nature in this function.

ANTIKAMNIA FOR PAIN OF OTITIS.—Dr. George H. Powers, Professor of Ophthalmology and Otology in the University of California, San Francisco, in an article in *The Medical News*, in reference to the treatment of pain in

otitis, commends Anti-kamnia, after satisfactory trial, in ten grain doses.

CLINICAL NEUROLOGY.

PRIMARY DISSEMINATED SARCOMATOSIS IN THE SOFT MEMBRANES OF THE CENTRAL NERVOUS SYSTEM.—F. Svenson has classified the fifteen cases on record. Three were tumors of endothelial origin with endothelial cells, rapid in their development, three and a half months maximum; five of endothelial origin, in which the cells had lost their endothelial type, course from two months to six years; besides the symptoms indicating pressure there were other morbid manifestations; and seven round-celled sarcomas, average age at death thirteen years, course rapid, from two and a half to twelve months. In his personal case, belonging to the second group, the base of the brain was found dotted with large and small tumors in the pia mater, respecting the nerve substance almost completely, and a single large tumor in the lower part of the occipital and temporal prolongations, distinguished by an alveolar structure, although three kinds of tissue were evident, granular nuclear cells clearly defined, surrounded with a thin layer of protoplasm, ramifying on all sides. These ramifications united with others and formed a myxoma-like tissue. There were also other similar cells without clear outlines. An ependymitis sarcomatosa was also noted. The first manifestations were headache and convulsions followed by inco-ordination, facial paresis, blindness from papillary stasis, frequent unconsciousness and diminished psychic functions; after six years death in coma, interrupted by convulsions. His article in the *Nordiskt Med. Ark.*, No. 32, 1897, is finely illustrated.

PSEUDOSPASTIC PARESIS WITH TREMOR.—Dr. Onuf describes a case of the rare affection to which Fuerstner gave the above name: A man, aged forty years, a heavy drinker, was struck on the top of the head by the corner of a trap door. There was immediately paralysis of the face

and all the limbs, with loss of sensation, but no loss of consciousness. No external injury could be found. After twenty minutes speech and facial movement were completely recovered; power was recovered more slowly in the arms and legs. After four months power was completely restored, but there were curious tingling sensations in the hands; the most striking and troublesome symptom remaining was the occurrence of a violent trembling and shivering of the whole body on the slightest excitement. The deep reflexes were greatly increased, and any attempt to elicit them caused shivering movements of the limbs; plantar and abdominal reflexes were absent. Gait was high stepping, of spastic type. The pathology of this affection is uncertain. Suggestions have been made that it is a functional disturbance or traumatic neurosis, that it is due to a traumatic lesion of the spinal cord, or that it is due to capillary hæmorrhages in the brain. None of these theories, however, will explain all the cases that have occurred.—(*Neurol. Centralbl.*)—Potter, selections in *Pacific Medical Journal.*

SCHEME OF THREE LEVELS IN THE CEREBRUM.—In a recent address before the British Neurological Society (*British Medical Journal*, January 8, '98), J. Hughlings Jackson discussed the relations of different divisions of the central nervous system to one another and to parts of the body; the evolution of nervous centers, and the study of nervous maladies as dissolutions. A morphological scheme of the whole nervous system, he says, such as spinal cord and encephalon, is inadequate. We must have one based on degrees of directness and complexity with which nervous centers, or as he prefers to call them, levels, represent impressions and movements of parts of the body; an anatomical and not merely a morphological scheme. While he maintains that the lowest level is common to the cerebral and cerebellar sub-systems, he does not attempt any division of the cerebellum into levels. The lowest level extends, it is suggested, from the tuber cinereum to the conus medullaris; it being made up of sensory and motor centres of the cord, medulla, pons, and aqueduct—represent-

ing the body in detail. There are other centres of this level itself, presiding over respiration, intestinal action, defecation, micturition, the sexual act, parturition, etc.

The Rolandic region and prefrontal lobe are the motor provinces of, respectively, the middle and highest levels; the sensory provinces are not so well defined. The unit of constitution of the whole nervous system is sensori-motor, and also that in the middle and highest levels at least, the so-called motor provinces are only *chiefly motor*, and the sensor provinces are only *chiefly sensory*. In explaining the intermediation of common motor centres of the lowest level, he says the cerebellum represents movements of the skeletal muscles in the order, trunk, leg, arm, preponderatingly extensorwise; the cerebrum represents movements of the same muscles in an inverse order, preponderatingly flexorwise.

It is also supposed that impulses from motor centres of the higher levels of each subsystem continuously act upon the motor centres of the lowest level; that the impulses from each set of higher levels antagonize or inhibit one another in different degrees upon different lowest motor centres; that the degree with which the central and the cerebellar impulses antagonize one another corresponds to the degree of their different representation of muscular movements.

The relations of the cerebral and cerebellar subsystems to one another is otherwise explained by their having the lowest level in common; he compares and contrasts cerebral and cerebellar maladies with one another as being complementary inverses, as in case of extensive cerebellar paralysis (trunk, legs, arms), and rigidity as the corresponding opposite of the double hemiplegia (arms, legs, trunk), and rigidity of an advanced case of paralysis agitans; in the former the attitude is opisthotonic, in the latter slightly emprosthotonic.

The relations of the several levels to one another are manifested in the degree with which the organs of the digestive, circulatory, respiratory and thermal system, are represented by the lowest and highest levels.

The action of the emotions on the heart, and of the emotions and will on respiration, are illustrations of organic functions influenced by the highest level; that is, by the anatomical sub-strata of states of consciousness.

He describes three factors in the regulation of the respiratory system: (1) Nervous regulation, through the respiratory centre; also by impulses ascending the vagi and by the high levels. (2) Mechanical regulation, from elasticity of lungs and costal cartilages. (3) Chemical stimuli—as effete nitrogenous products and deficiency of oxygen. There is a roundabout relation between the lowest level and these highest levels; from high tension, less. It has been suggested by Greg, in his *Enigmas of Life*, that bodily pain and disease may directly contribute to the loftiest efforts of the intellect.

Venous blood may act as a "natural stimulant" of the respiratory and other centres of the lowest level; in severe cases of emphysema with bronchitis it is thought to annul the function of the lumbar centres concerned with the knee jerk. Asphyxia first exaggerates, and then causes loss of the knee jerk in dogs. There is greater activity in lower nervous arrangements of the highest level consequent on loss of function of the highest, caused by supervenous blood over action of the lower from the loss of control by the functionless highest.

He gives the following scale of fits: Lowest level fits, middle level fits (the epilepsy described by Bravais in 1827), and highest level of fits (so-called idiopathic epilepsy). After a discussion of respiratory fits he concludes that, in comparison with the adult, the lowest level centres are in infancy little governed (positive motor), and little controlled (negative motor), by the highest levels; that the lowest centres are, in consequence, naturally healthily more excitable than in older people.

Following Herbert Spencer, he describes four factors in the evolutionary ascent: (1) Increasing differentiation (greater complexity); (2) increasing specialization (greater definiteness; (3) increasing integration (greater width of representation); and (4) increasing co-operation (greater association).

He then submits a comparison and contrast between middle level and highest level fits as dependent on discharges of levels of different evolutionary rank. The middle level fits he calls epileptiform seizures, from a discharge lesion in the Rolandic region. Highest level convulsions are those of idiopathic epilepsy from discharge lesion of some part of the prefrontal lobe (motor province of the highest level). He concludes that there are certain differences in convulsions dependent upon difference in quantity of energy and on different rates of its liberation in each kind of fits.

In discussing dissolutions from disease, he would have us bear in mind not only the dissolution, which is effected by disease, but the evolution going on in the undamaged, healthy remainder. He illustrates with a case of insanity: "Whilst the negative affection of consciousness in every insanity answers to the dissolution, loss of so much, the positive mental symptoms, illusions, delusions, etc., signify evolution going on in the healthy remainder; going on in parts which disease has spared; going on in the lower, but now highest, range of evolution. The most complex, etc., nervous arrangements, centres and levels, are the least organized; the most simple are the most organized. Thus the centres of the lowest level are much more strongly organized than those of the highest level. If the 'vital' centres of the lowest level were not strongly organized at birth life would not be possible; if the centres of the highest level ('mental centres') were not little organized and, *therefore, very modifiable*, we should make few new acquirements. The highest level is supposed to be less and less organized and, therefore, less and less automatic the higher the 'layer.' The highest layers are the least organized, least automatic and are attended by most vivid consciousness.

"The main elements of that part of mind which is commonly distinguished as intellect from the other part called emotion or feeling, are visual and tactual ideas and words. Much the greatest part of mentation, both in the sane and the insane, is carried on in visual ideas. He thinks that the physical basis of the psychical things we

call words are audits—articulatory nervous arrangements and suggest that highly complex and special movements of the tongue, lips and palate are represented in the highest level. He concludes that taking into account not only the physical 'bases of visual and tactual ideas and of words, but also the vast number of connecting fibres implied by the innumerable combinations into which these ideas and words enter, that the motor province of the highest level, if not more voluminous, is yet more intricate than the motor province of the middle level; and that destruction-lesions of the former are more tolerable than equal-sized destruction-lesions of the latter; the reverse for discharge lesions."—*J. U. Barnhill, Periscope of Neurology.*

SOME CLINICAL VARIETIES OF PERSECUTORY DELUSIONS.—Drs. Taty and Toy (*Annales Medico Psychologique*, Dec. 1897), contribute an interesting article on this subject based upon a study of nearly two hundred observations. They conclude that there is much regularity in the manner in which delusions of persecution develop. Four types are recognized: 1. In 45 per cent of the cases the delusions of persecution were followed by delusions of greatness and terminated in dementia; 2. In 23 per cent there existed evidence of defective mental development: 3. Finally in 32 per cent the delusions terminate without exaltation having made its appearance, often in dementia.

In many cases strong and clear delusions of persecution are found to be mixed with delusions of greatness when the latter are not very obtrusive. These delusions of greatness do not appear to be essential in the development of systematic delusions of persecution, but rather are to be regarded as an indication of consecutive intellectual enfeeblement but they are frequently fundamentally connected with the subject in regard to which the delusions of persecution are developed.

4. Sometimes the delusions of persecution do not progress either to a feeling of exaggerated importance or to dementia.

Besides regularly developed varieties, transitory or

inverted forms are met with. In hereditary cases these delusions of persecution often develop abruptly, are only of episodic importance and vanish as suddenly as they came; these delusions have no absolute significance and it need not be thought that these forms only are seen in hereditary cases, for the insane with hereditary taint present all possible forms of evolution.

As for the inverted forms, delusions of persecution are consecutive to delusions of greatness; they are rare and only observed in the weak-minded, but their existence appears to be beyond doubt.

There are no essential differences besides those of evolution. Whenever there are delusions of persecution the clinical picture remains sensibly the same.—Sanger Brown, M. D., Report on Progress, *North American Practitioner.*

TRAUMATIC AMIOTROPHIC LATERAL SCLEROSIS.—Goldberg reports a patient who fell nine feet, striking the buttocks and injuring the right toot. Pain and weakness, especially in the right knee, foliowed. For two years there was no sign of organic disease. After two years amyotrophic lateral sclerosis, marked in the right leg, developed with weakness in both legs; and spastic gait. Patellar reflex there was plus marked ankle-clonus, dragging of the toes and distinct muscular atrophy.—*Berliner Klinische Wochenschrift*, March 21, 1898.

THE PROTECTING ROLE OF THE LYMPHATIC GANGLION IN CERTAIN INFECTIONS.—According to M. P. Haan, in the *Normandie Medicale*, for February 15th, (*Independence Medicale*, March 9th), the role of the ganglion in infection comprises two distinct periods: One of the collection, in which it acts by protecting the part of the economy to which it belongs by a derivation of the virulent product. But soon after becoming hypertrophied and having done the work of phagocytosis, it succumbs in its physioiogical function and becomes a generating element of extreme danger.

This course of events undergoes various forms according to the nature of the infection. The ganglion plays a considerable role in syphilis, in which the lymphatic ele-

ment is shown to be distinctly protective. In epithelioma-tous infection, on the other hand, the ganglion assures a relapse, and its speedy destruction is extremely necessary. —*The Fort Wayne Medical Journal-Magazine.*

NEURO-PATHOLOGY.

FUNCTIONAL NEUROSES.—Biernacki (*Neurol. Centralbl.*, March, 1898) discusses the etiology of hysteria and neurasthenia. He contends that these neuroses are not the manifestation of a primary psychical disturbance, as most observers have thought, but that they are merely symptoms of a morbid condition of the blood. In fifty cases of hysteria and neurasthenia, in which the blood was examined by special methods, there was found to be an abnormal amount of fibrinogen, and also an abnormal amount of fibrin in proportion to the amount of fibrinogen. In many cases also a curious clear appearance of the venous blood without any diminution of red corpuscles or of hemoglobin was observed. The blood changes are so constant in functional neuroses, even when these follow some traumatism, that they can only be regarded as primary. This view is supported by the frequency of hysteria as a complication of chlorosis, even when, as the writer has shown, the only evidence of chlorosis is the hydremic condition of the blood. The blood changes which produce functional neuroses are due to disturbance of oxidation processes. This explains the frequent association of hysteria with the uric acid diathesis. The hereditary character of hysteria is analogous to the heredity of gout and diabetes, which are also the result of disturbed oxidation processes. The effect of emotional disturbance in producing hysteria does not disprove this view, for gout and diabetes are markedly influenced by emotion.—*The Times and Register.*

EDITORIAL.

[*All Unsigned Editorials are Written by the Editor.*]

Medical Men in War.—Now that war with Spain is on and medical men with others are to come to the front in the conflict, it is well to recall the fact that medical men took an active part in the American Revolution from the signing of the immortal Declaration to its close. Sometime ago the *Medical Standard* looked up the subject and remarked thereon as follows:—

"Among the signers were Drs. Josiah Bartlett, Lyman Hall, Benjamin Rush, Matthew Thornton and Oliver Wolcott. Dr. Bartlett took an active part in the creation of the Pharmacopeia of the Massachusetts Medical Society in 1808. This was the first official pharmacopeia published by a medical organization in the United States. Dr. Bartlett was prominent also in the organization of the Massachusetts Medical Society. It is a singular commentary on the modern cant about the need of business men in medical offices that Dr. Oliver Wolcott was appointed Secretary of the Treasury by President Adams and retained his position during the administration of President Jefferson. He was one of Washington's favorite advisers on financial questions."

Rest for the Weary.—If we use the machinery of our minds and body aright, taking the same pains in its resting, running and oiling as the mechanic does of a steam or electric engine, it will work well for us, keeping time to nature like our watches to the sun, but abused, our own organism will serve us as our watches would if badly used. The time to rest is when nature tells us we are tired. We should not then apply the whip and spur of stimulation further except for exceptional purposes when, through previous refraining, we have a reserve of vital force to expend on extraordinary occasions. We should rest much and often between work, that this reserve of force may accummulate in our nerve centers like water in a well when we stop the

pump awhile. *The time to rest* best is nightly after each day's labor, that the raveled sleeve of business care may be rewound. The place is that which may furthest remove the mind and body from influence of the causes that produce the weariness, and the "how" is in such manner, in such place, at such time and under such circumstances, as personal or medical experience may counsel. When the system is greatly broken, to one person rest may come best at home, to another away from home, to a third it may be best secured through a congenial and diverting recreation, to a fourth through a cherished form of relaxation and to a fifth, it may be best to be brought about by oblivious stupidity and inaction or a kind of Rip-van-Winkle sleep till the strain of the past and the demands of the present are dead and a desire for a renewed life comes back to the awakened sleeper.

As to where and when, the theologian might answer your question easiest. He would answer Heaven, and would then only have to answer how. Heaven, however, is not within the realm of the physiologist or the neurologist, and as it is conducted on a gold basis, its streets being paved with the yellow metal, you might "rest easy" in the discussion of this subject "on this line." So I start again.

The prime essential of a restful life is a healthy organism and the essentials of healthy organism are regulated labor of mind and body, with disposition to sleep, to eat and to act again, the normal rhythm of mental and physical life, the healthy waste and correlative repair of the machinery of man's body and mind. The human organism within nature's time limits is a perpetual motion machine, so far as waste and repair are concerned, being alternately wasting and repairing, having its own mechanisms of repair and capable of providing for its own reconstruction from day to day.

Alcoholism as a Cause of Nerve Disease.— It is refreshing and reassuring to find some one defending alcohol against the charge of almost all the evil in the world. Enough of pathology and more sin legitimately lie at its door without slandering this agent of evil with all the disease and death, psychical or physical, found innocently associated with it.

Careful statistical studies upon suicide, writes Dr. Irving C. Rosse, in the *Maryland Medical Journal*, show that alcoholism plays but a second part in its causation. The same statement holds good as regards intemperance in the production of insanity. Mr. Gladstone's sweeping assertions on this subject are as untrustworthy as some of his former political views,

while Lord Shatsbury's fifty per cent., according to Sir Erederick Bateman, is not indorsed by those competent to form an opinion on the subject, and after frequent discussions at various scientific associations has been reduced to fourteen per cent. and by some observers even to a less figure. Much that is attributed to drunkenness is the result of other influences that become apparent when we ask whether drunkards are improvident and shiftless because they are drunkards or do they become drunkards because they are improvident and shiftless? An individual of bad hereditary organization may go through life regnlarly as long as the determining circumstances are wanting. Yet he has about him the culture bouillon in which the microbe is absent. Some day certain circumstances may impress the culture and it will cease to be sterile. Ill-health, misforune, or untoward social condition, playing the role of the microbe, may bring about trouble that a healthy organization would resist.

Conservatism in War.—Though loyalty to the memories of our dead slain while they slept, by the treacherous hand of Spain, demands in this crisis of national honor stained, that we remember the Maine, it is not for vengeance, but for humanity that we strike the blow. No such sacrifice of American seamen can be permitted without fouling our flag and honor before all mankind and high Heaven. And as we cannot permit the treacherous destruction of an American ship with hundreds of lives in a professedly friendly port to pass unatoned for, so can we not permit patriots who offer the risk of their lives on the altar of patriotism to be ruthlessly or needlessly smitten by pestilential fevers and preventable disease or disability. That high humanity, entirely compatible with the highest patriotism which has prompted Commander General Miles to regard the reasonable safety of the American soldier and say no needless sacrifice of men should be made, is also the highest generalship, for such a concern for the soldier gives the greatest efficiency, by giving the maximum possibility of men fit for duty. Besides we have embarked in this war in the righteous name of humanity. It is a crusade in the name of our fellow-man and duty and we confidently ask for our arms the favor af Heaven. The same imperious duty to God and man that impels us to go forward in this fight, to make the cause of free Cuba our own and plant the flag of the free on the soil of the tyrant assassin of civilization and human rights at our doors, impels us to have a sympathetic regard for the health and life of the American soldier whose welfare it is as much our duty to guard by all proper sanitation, as it is the duty of the nation to stop the ruthless starvation and murder on our border which Spain miscalls war. As we strike only for

humanity and the right, let us take every care of the men who fight for our cause.

Didactic and Clinical Instruction in American Medical Colleges.—The following resolution offered to the Association of American Medical Colleges having been laid upon the table requires some elucidation:

Resolved, That this Association, while favoring the most ample facilities for clinical teaching is not disposed to consider any scheme of medical instruction that contemplates the exclusion of didactic instruction from the curriculum of any American medical college.

The tendency in some directions is to ignore all but clinical teaching. This is impracticable in the light of the true psychology of the clinic, and if the welfare of the patient is worthy of consideration. A lengthy detail and discussion of symptomatology and treatment in the hearing of the patient leads to depressive self-introversion of thought and undue solicitude retardative of recovery and an unfavorable prognosis ought never to be uttered in the presence of the patient. Besides lengthy dissertations at the bedside of the critically ill are homocidal. The only legitimate use that should be made of the sick before a class of students would be to present them for observation by the students and for encouraging and hopeful remarks where the same may be possible by the clinical professor. Detailed symptomatic comparison and therapeutic discussion over a seriously sick person surrounded by a class of curious and sometimes carelessly unsympathetic students, is out of place and sooner or later a more humane and sympathetic law in a country regardful of the rights of man in affliction as well as in health, would come to the rescue, should the teaching methods or some foreign countries become the practice in American medical schools and hospitals. It is possible to learn everything essential of the patient clinically and at the same time to not harm him. But this is not a possibility if only clinical instruction should obtain in the department of practice of medicine in our colleges and hospitals.

Neither heartlessness of symptomatic detail nor inhumanity in handling and prognosis in the presence of our clinic victims is essential to the most advanced medical instruction. Nor will the American medical mind and heart, or non-medical mind and heart tolerate them. Medical science in this country will not ignore the dictates and demands of humanity.

Some foreign clinical instruction would be a legitimate subject of legal interposition in a country like ours, regard-

ful as it is above all others, of the rights of man. The sentiment of the above resolution though voted down will not down, but must prevail, if humanity is to abide as the handmaiden of science in the hearts of the medical men or America.

The Neurotherapy of the Mammoth Cave Air. —Dr. John R. Procter, discussing the air of the Mammoth Cave of Kentucky in *The Century Magazine*, March, 1898, notes a fact which we can confirm from personal observation of, and in, that great underground cavern, that the air within the cave has a uniform temperature, summer and winter, of 54° F. The cave may be said to breathe twice a year—inhaling during the winter and exhaling during the summer. This breathing of the cave, and the purity of the air and its freedom from germs, are among the most interesting problems to be studied.

By what process the air in the cave becomes sterilized remains to be determined; but it is supposed the air gets into the cave after having been first drawn through water, the river in the cave being subject to rising and falling at certain times. Neurasthenics and persons extremely debilitated feel invigorated after they once get into the Cave, so that they can endure physical exertion much beyond what they could outside.

The influence of the Cave appears to be rather antirheumatic than otherwise owing probably to the remains of the saltpeter beds therein, which were the chief source or one of the chief sources of the supply to the gunpowder makers during the war of 1812.

A colony of consumptives once took up their abode in the Cave but it did not cure them, and consumptives used to be sent to the Cave for its pure air, but the absence of sunlight is a serious counteracting influence to these cases. But a life near this Cave with frequent visits into the Cave enjoined, ought, because of its restful quietude and pure air, to prove a good prescription for part of the treatment of chronic city neuratrophics. Asthmatics have also been much benefited by the air of this Cave.

The Rush Monument Fund.—The Rush Monument Committee of the Ohio State Medical Society issues the following:

At the annual meeting of the American Medical Association, in 1884, it was unanimously resolved: "That this Association undertake to erect a statue to Dr. Benjamin Rush in the city of Washington, by the members of the profession of medicine in the United States." Year after year the

Association has endorsed this project, and yet last June the regular physicians of this country, more than one hundred thousand in number, had after thirteen years of trial succeeded in raising only a little more than $4,000. Contrast with this the success of the Homeopaths, comparatively few in numbers, who collected in a few years $75,000 for their monument to Hahnemann, the model for which has recently attracted much attention by its beauty and artistic excellence. Dr. Albert T. Gihon, who has been for years the Chairman of the Rush Monument Committee for the American Medical Association, in his report at the last meeting of the Association spoke thus of him for whom the monument is to be erected: "I do not believe there is another profession, trade or occupation which could claim such a man as its Revolutionary hero which would not long ere this have honored him. * * Benjamin Rush was no ordinary man. He was not one among ten, nor one among a hundred, but one among a thousand of the patriot sons of America, who sowed the seeds of liberty in this country. He was the one *par excellence*, the illustrious, incomparable physician who, having made himself master of his craft by long study, devoted himself to its higher development, and became famous as its expounder, who when his country required his services, with equal alacrity and whole-souled purpose, gave them to her and became famous as her defender; who, when the crisis was over and the new Republic became an established government, resumed his professional work, and in a hundred ways, and a hundred years in advance of his time, sought to improve social and sanitary conditions, and became famous as a great reformer, philanthropist, and sanitarian; who, doing all this faithfully, performed the duties of his calling as a practitioner of medicine, and sought to minister to his suffering fellow-citizens at the hazard of his own life, which he at last offered up a victim of the prevailing epidemic of typhus, and became famous for his heroic martyrdom. This man claims the homage of every lover of his country, because of his courage in maintaining its liberties at the hazard of his life; of medical military men, especially, because he was the Surgeon-General of the Revolutionary Army, and vigorously insisted upon the proper organization of its medical department; of practitioners of medicine, because of his acquirements and skill as a practitioner; of the literary world, because of his attainments as a chaste and elegant writer; of scholars and professors, because of his abilities as a lecturer and teacher."

Beginning to feel that the apathy of the physicians to this project was becoming a disgrace to the profession, the Association, at its last annual meeting, made a special effort to stir up some interest and enthusiasm. As a result a considerable number of individual subscriptions of $100 each were made, and a number of State societies, through their representatives, were pledged to raise $2,000 each before the next meeting in Denver.

Change of Medical Education Center.—*The Hahnemannian Advocate* finds that there has been a gradual change taking place in the center of medical education. According to the latest statistics, Chicago ranks first in order, with

over 2500 medical students; Philadelphia second, with upwards of 2300 students; New York shows a decrease in attendance from 1889 of almost 200, giving her the third place with 1900 students; St. Louis ranks fourth, having passed Baltimore, Cincinnati and Louisville, and has about 1400 students; Baltimore has 1300 students and occupies the sixth place. Of this number, The Barnes Medical College, of St. Louis had over 600 students in attendance at the last session.

Is the Emperor of Germany a Paranoiac.—*The Electrical Review* says that Emperor William will decide what system of electrical traction shall be adopted in Berlin and that it is highly probable he will not select any of the systems proposed but invent a new one himself. This, taken in connection with his proposed visit to the Holy land to personally settle a great and mooted question among the most eminent of Archaeologists, his authorized flam-buoyant religious fulmination through his brother over the China fleet expedition, his extensive and anachronismic application of the law of Les Majestie against his subjects, coupled with his physical deformity and disease of Mastoid, suggest this possibility. To this may be added his egoistic attitude toward the United States in the present Hispano-American war.

Ancient Conception of the Parasitic Origin of Disease (Germ-Infection.)—Professor Alfred Gudeman has called my attention to a passage in Varro, De Re Rustica, Book I, Chapter xii, which was written 37 B. C., which contains an interesting anticipation of the theory that disease is due to infection by parasitic organisms, invisible to the naked eye—then conceived as belonging to the animal kingdom. It is as follows:

"*Advertendum etiam, si qua erunt loca palustria et propter easdem causas et quod arescunt et quod in iis crescunt animalia quædam minuta quæ non possunt oculi consequi et per aera intus in corpus, per os ac nares, perveniunt atque efficiunt difficiles morbos*".—Charles W. Dulles in *University Medical Magazine.*

Degeneration.—The *Philadelphia Medical Journal*, concluding an editorial on this subject, says: "The special science which it represents is itself showing some signs of being 'degenerate' and of bearing some degenerate fruit, especially in criminal anthropology and medical jurisprudence." And this criticism is not altogether without foundation.

A Doctor's Part in the Discovery of America.—*The Medical Age* contains this reference to the part played by D. Paolo Toscanelli, a Florentine physician, in the discovery of America:

The Spaniards are probably asking themselves what on earth possessed Christopher Columbus that on an evil day he should have discovered America. Now that everything Spanish is to be reprobated, it is satisfactory to find that while Columbus actually discovered the Western Continent, the existence of it and the way of reaching it were suggested to him by a Florentine doctor named Paolo Toscanelli. The truth seems to be, according to Prof. De Lollis. that Columbus placed himself in communication with Toscanelli in 1479, and that Toscanelli provided Columbus with a map which guided the discoverer in his voyage. Columbus, in his log of the ship, admits the service that Toscanelli performed. The Florentines are about to celebrate the part Dr. Toscanelli performed in the discovery of the Western Continent.

A Proposed National Society for the Study of Epilepsy and the Care and Treatment of Epileptics.—The medical superintendent of the Craig Colony, Dr. William P. Spratling, proposes to form such a society, and he indicates the scope of its work as follows:

1. The scientific study of epilepsy.
2. The rational treatment of the disease.
3. The best methods of caring for dependent epileptics, including:

a. The construction of proper homes based upon a study of the epileptic's needs as to classification and environment.

b. The study of the utilization of the epileptic's labor, for economic, scientific, and ethical reasons.

c. The study of the best educational methods to be employed, including manual, industrial, intellectual, and moral forms and forces.

In such a society, science, philanthropy, and practical charity may well combine for a common purpose.

With a view to ascertaining, in a measure, the desirability of the organization of such a society, thirty-five circular letters have been sent to physicians and others who might be interested in the matter. To these, thirty replies have been received, as follows: In favor of, twenty-three; neutral, three; opposed, four.

Persons who are disposed to make suggestions on the subject are asked to communicate with Dr. Spratling, Sonyea, N. Y.—*N. Y. Med. Journal*, March, 5th. 1898.

The American Medico-Psychological Association.—The fifty-fourth annual meeting of this association was held at St. Louis, Mo., May 10th, 11th, 12th and 13th, 1898, at which the following papers were read:—"Insanity Defined on the Basis of Disease," C. H. Hughes, M. D., St. Louis; "The Scientific Border-Line between Sanity and Insanity," E. C. Runge, M. D.. St. Louis; "The Nerve-Cell Changes in Somatic Diseases," Aug. Hoch, M. D., Waverley, Mass.; "A Short Study in Psychic Phenomena," H. C. Eyman, M. D., Cleveland; "The Lesson Taught by a few Hard Cases," W. E. Dold, M. D., White Plains, N. Y.; "The Judicious Training of Neurotic Children an aid to the Prophylaxis of Insanity," D. R. Brower, M. D., Chicago; "The Etiology and Pathology of Disease of the Lungs among the Insane," H. A. Tomlinson, M. D., St. Peter, Minn.; "Does the Loco-Weed Produce Insanity," C. W. Pilgrim, M. D., Poughkeepsie, N. Y.; "Thyroids in Insanity," B. W. Stone, M. D., Nashville, Tenn.; "Psychical Epilepsy in its Medico-Legal Relations," C. H. Hughes, M. D., St. Louis; "Sub-Conscious Homicide and Suicide: Their Physiological Psychology," C. P. Bancroft, M. D., Concord, N. H.; "Insanity and Homicide," H. E. Allison, M. D., Fishkill Landing, N. Y.; "Some Remarks on the Relation of Mental Diseases and Surgical Operations, with Report of Forty Cases of Insanity following Surgical Operations," Richard Dewey, M. D., Wauwatosa, Wis.; "Asylum versus Hospital," J. Russell, M. D., Hamilton, Ont.; Annual Address: "The Mutual Relation of the Alienist and Neurologist in the Study of Psychiatry and Neurology," J. T. Eskridge, M. D., Denver; "Hospital Treatment for Acute Insanity," A. B. Richardson, M. D., Columbus, Ohio; "Some New Hospital Buildings," Wm. M. Edwards, M. D., Kalamazoo, Mich.; "State versus County Care for the Insane," B. D. Eastman, M. D., Topeka, Kan.; "Better Care for the Chronic Insane," H. A. Gilman, M. D., Mt. Pleasant, Ia.; "The Wisconsin County Care System," W. B. Lyman, M. D., Mendota, Wis.; "The Boarding-Out System in America: Why not?" G. Alder Blumer, M. D., Utica, N. Y.; "The Value of Hospital Records," Wm. Mabon, M. D., Ogdensburg, N. Y.; "Practical Methods in Physiological Chemistry," R. H. Hutchings, M. D., Ogdensburg, N. Y.; "Occupation in the Treatment of the Insane," Frank C. Hoyt, M. D., Clarinda, Ia.; "The Insane of California," A. M. Gardner, M. D., Napa, Cal.; "Clinical Resemblances in Neurasthenia, Hysterical Insanity, and some Forms of Circular Insanity," E. A. Christian, M. D., Pontiac, Mich.; "Incipient Melancholia: Its Diagnosis, Prog-

nosis and Management," John Punton, M. D., Kansas City, Mo.; "Ephemeral Mania," T. J. W. Burgess, M. D., Montreal; "Some Forms of Syphilitic Insanity resembling General Paresis," C. R. Woodson M. D., St. Joseph, Mo.; "A History of the Insane in America. Shall the Association have one Prepared?" J. W. Babcock, M. D., Columbia, S. C.

The following officers were elected for the ensuing year; President, Dr. Henry M. Hurd, of Baltimore; Vice-President, Dr. H. H. Gilman, of Iowa; Secretary, Dr. C. B. Burr, of Flint, Mich.; Auditors, Drs. H. A. Tobey and C. B. Hull; Councellors for three years, Drs. L. C. Meade, C. W. Babcock, C. D. Page and L. P. Wade.

Conferences of State and Provincial Boards of Health of North America.—The thirteenth annual meeting of the Conference of State and Provincial Boards of Health of North America will be held in Detroit, Michigan, August 9th, 10th and 11th, 1898.

"The Quarter Centennial Celebration of the Establishment of the Michigan State Board of Health" will be in progress at the above named time. This will, undoubtedly, add greatly in every way to the success and profit of the Conference.

The usual Conference work will begin on the morning of August 10th.

After the meeting, it is expected that the Sanitarians from outside of Michigan will be given free transportation to various summer resorts. Therefore, it is hoped that all will come prepared to spend at least a week in Michigan.

The first day, August 9th, will be given to meeting with the Michigan Quarter Centennial Celebration in effecting organization and hearing Reports of Committees.

The second day will be given to the subject proposed by Dr. Baker, of Michigan, as follows: "Each State and Provincial Board of Health has some principal line of work which reaches nearer perfection than does the work of any other Board along that particular line. I therefore suggest that the topic to be presented by all the Boards represented at the Conference be as follows: "*What are the Principal Lines of Work of your Board? How is Each Accomplished? What Modification, if any, does the Experience in your State Suggest?*"

Every Board represented in the Conference is expected to present, through its delegate, written replies to the above questions so far as it can. These reports and discussions

and reports of committees will consume the time of the morning, afternoon and evening sessions of August 10th.

The third day, August 11th, will be given to discussion of the *various phases relating to the Restriction and Prevention of Tuberculosis.*

Dr. Benj. Lee, President, 1532 Pine Street, Philadelphia, Pa.; Dr. J. N. Hurty, Secretary, Indianapolis, Ind.

Meeting of the American Medical Association.—The 49th annual meeting of this association at Denver, was one of the most satisfactory in its history. The very atmosphere of Colorado seemed to be imbued with hospitality. The attendance exceeded the highest expectations, the registration reaching 1600. Owing to the absence of President Sternberg, the chair was filled by First Vice-President Joseph M. Mathews, of Kentucky.

The entertainments provided by the local committee were elaborate and pleasing in the extreme, and pleasant memories of Denver will ever remain in the minds of the visiting physicians.

The following officers were selected for the ensuing year: President, Joseph McDowell Mathews, of Louisville, Ky.; First Vice-President, W. W. Keen, of Philadelphia, Pa.; Second Vice-President, J. W. Graham, of Denver, Colo.; Third Vice-President, H. A. West, of Galveston, Texas; Fourth Vice-President, J. E. Minney, of Topeka, Kansas; Secretary, William B. Atkison, of Philadelphia, Pa.; Treasurer, Henry P. Newman, of Chicago, Ill.

Members of the Board of Trustrees: Alonzo Garcelon, of Maine; I. N. Love, of St. Louis, Mo.; H. L. E. Johnson, of Washington, D. C., and X. C. Chappel, of Boston.

The next meeting will be held at Columbus, Ohio.

NOTES.

First Pyramid Builder a Physician.—The Berlin correspondent of the *Boston Medical and Surgical Journal*, states that some recent study of antique Egyptain papyri, especially the Ebers papyrus, No. 99.3, seems to show that the builder of the first pyramid was a physician. The hieroglyphic with which he constantly signs his name means servator, preserver, and was a usual designation of physicians at the time. As he uses the designation on all occasions to the exclusion of other titles, though he is known from other sources to have had very honorary titles, and it

was not the usual custom of the Egyptians to let their titles remain unknown for lack of mention, he would seem to have been proud of his right to the title of physician, and is probably the first worthy member of the guild on record.

Training School Commencement.—We acknowledge the receipt of an invitation to be present at the Commencement Exercises of the Training School for Attendants, in the Amusement Hall of the State Hospital at Danville, Penn'a, Thursday, July 14th, 1898, at 8 p. m., and regret our inability to attend.

The Alienist and Neurologist, St. Louis, Mo.:—This journal enters upon its nineteenth year with an opening number of about two hundred pages. * * It is a standard publication, and indispensable to the student of nervous aud mental diseases.—E. H. S., *Canadian Journal of Medicine and Surgery*.

The Denver and Rio Grande Railroad is the scenic route from Denver to the Pacific coast. It will transport you with ecstacy; a good bed and good square meals, while you gaze in transport on its entrancing vale and mountain scenery rivalling that of Switzerland. Mr. Andrew Hughes, the handsome and accomplished master of transportation will see that your luggage is transported without card to you and enable you to bring back without anxiety for their safety the nuggets of gold you may gather in the mountains of Colorado or Utah and the nuggets of wisdom gleaned from observation all along the scenic route of American travel. You will miss nature's most picturesque painting if you take any other route westward across the American continent. Besides carrying the tourist through natural scenery of unsurpassed grandeur, this road carries him to Zion, the City of the Saints, with its wonderful Temple and Tabernacle of the Mormons and its contiguous hot Sulphur Springs and baths and its great salt lake and mountains of mineral wealth—gold, silver, aluminum, asphalt, sulphur, arsenic and granite.

REVIEWS, BOOK NOTICES, ETC.

THE ST. LOUIS MEDICAL GAZETTE, first volume and number, with an editorial staff of well known medical gentlemen and an attractive table of contents, is on our review table. It is to be a Monthly Journal of Medicine and Surgery, and must find and hold a place in Medical Literature, if its Editorial Staff continues its present excellent showing. Its Managing Editor is Martin F. Engman, M. D. Its Associate Staff embraces; Charles G. Chaddock, M. D.; George C. Crandall, M. D.; Carl Fisch, M. D.; Frank L. Henderson, M. D.; Phillip Hoffman, M. D.; Bransford Lewis, M. D.; Hanau W. Loeb, M. D.; Norvelle W. Sharpe, M. D.; Albert S. J. Smith, M. D.; George M. Tuttle, M.D. C. R. H. Davis, Publisher and Financial Manager. Price $1.00 a Year in Advance.

MUTUAL RELATIONS OF THE RAILWAY SURGEON AND THE NEUROLOGIST. Presented in the Fourth Annual Meetingof the American Academy of Railway Surgeons, held at Chicago, Oct., 6-8, 1897. By J. T. Eskridge, M. D. Neurologist to St. Luke's Hospital and President of the State Board of Commissioners for the Insane Asylum, Denver, Colo.

The conclusion of this interesting address is as follows: "In conclusion, I wish to say that I believe every railroad or large corporation should have a consulting neurologist, and that the chief Surgeon of the road should insist that a careful neurologic examination be made of most of the injured as soon after accident as possible, especially in those cases in which there is likely to follow a suit for damages."

Auto-Intoxication in its Relations to the Diseases of the Nervous System. By Daniel R. Brower, M. A., M. D. Professor of Mental Diseases and Therapeutics, Rush Medical College; Professor of Mental and Nervous Diseases, Woman's Medical School, and Post-Graduate School, Chicago, Ill.

A Study of the Blind. An Analysis of 180 Pupils of the Pennsylvania Institution for Instruction of the Blind. By F. Savary Pearce, M. D. Instructor in Physical Diagnosis, University of Pennsylvania; Chief of the Medical Dispensary of St. Agnes' Hospital, Philadelphia.

Brief Mention of Neurological Cases Successfully Treated. By Irving C. Rosse, A. M., M. D., F. R. G. S., late Professor of Diseases of the Nervous System, Georgetown University; Mémbre du Congrés International d' Anthropologie Criminelle, etc., Washington, D. C.

Abdominal and Pelvic Surgery. Extracts from Clinical Lectures and Society

Transactions. By Wm. H. Wathen, A. M., M. D., LL. D. Professor of Obstetrics, Abdominal Surgery and Gynecology in the Kentucky School of Medicine, etc., Louisville, Ky.

Report of Cases of Chlorosis and Anaemia treated with Nucleo-Albumins and Bone Marrow, with Photomicrographs of the Blood before and after Treatment; Also Hints on the Use of Fleischl's "Hæmoglobinometer." By Ephraim D. Klots, M. D.

Eulogy on Jenner. Delivered before the Jenner Contennial Memorial, held under the auspices of the Golden Belt Medical Society of Kansas, at Salina, Kan., Oct., 1, 1896. By Wm. B. Dewees, A. M., M. D., LL. D.

The Clinical Value and Chemical Results of Using Professor Gaertner's Mother Milk in Children. By Louis Fisher, M. D. Professor of Diseases of Children in New York Clinical School of Medicine, etc., New York City.

Neurotic Eczema. By L. Duncan Bulkley, A. M., M. D. Physician to the New York Skin and Cancer Hospital; Dermatologist to the Randall's Island Hospital: Consulting Physician to the New York Hospital, Etc.

Circumcision, with a Description of a Pair of Circumcision Forceps. By Alex. L. Hodgdon, M. D., Dispensary Physician to the Department of Nervous Diseases, College of Physicians and Surgeons, Baltimore.

President's Address, Delivered at the Twenty-First Annual meeting of the American Neurological Association, June 5, 1895. By Philip Coombs Knapp, A. M., M. D., of Boston.

A Clinical Study of Kryofine. By Sidney V. Haas, M. D., late House Physician, and J. Bennett Morrison, M. D., late House Surgeon, Mount Sinai Hospital, New York.

Diet for Consumptives. By Reynold W. Wilcox, M. D. Professor of Medicine and Therapeutics in the New York Post-Graduate Medical School and Hospital, New York.

The Rôle of Uric Acid in Certain Types of Neurasthenia and Allied States — An Expression of Disturbed Metabolism. F. Savary Pearce, M. D., Philadelphia, Pa.

Nosophen and Antinosine in the Treatment of Genito-Urinary and Venereal Diseases, with Report of Cases. By Claude A. Dundore, M. D., Philadelphia, Pa.

Ueber die künstliche Hervorrufung der Sinnestäuschungen bei an hallucinatorischen Formen von Wahnsinn leidenden Alcoholikern. Von Prof. W. v. Bechterew.

Diseases and Injuries of the Sixth Nerve. By Dr. J. H. Thompson, Professor of Ophthalmology and Otology, Kansas City Medical College.

Ueber die Bedeutung der Cardiaca bei der Behandlung der Epilepsie. Von Prof. W. v. Bechterew, of St. Petersburg.

Die Erröthungsangst als eine besondere Form von krankhafter Störung. Von Prof. W. v. Bechterew, of St. Petersburg.

Treatment of Hemorrhage from the Genitals in Obstetric Practice. By Gustavus M. Blech, M. D., Chicago, Ill.

Some Remarks and Reports Upon Specimens in Abdominal Surgery. By H. O. Walker, M. D., Detroit, Mich.

Medical Expert Testimony in the Kelley Murder Trial. By Walter Channing, M. D., Boston, Mass.

Ueber den suggestiven Einfluss der acustischen Sinnestäuschungen. Von Professor W. v. Bechterew.

Neue Beobachtungen über die "Erröthungsangst". Von Prof. W. v. Bechterew, of St. Petersburg.

Primary Tuberculosis of the Rectum, with Report of Cases. By Leon Straus, M. D., St. Louis, Mo.

Some Fads and Fallacies of Modern Rectal Surgery. By Leon Straus, M. D., of St. Louis, Mo.

Some Personal Observations in Abdominal Surgery. By H. Tuholske, M. D., St. Louis, Mo.

The Truth About Cigarettes. Papers read and discussed by The Medico-Legal Society of N. Y.

Ueber das Hören der eigenen Gedanken. Von Prof. W. v. Bechterew, of St. Petersburg.

The Growth of Commercialism in Medicine. By John Shrady, M. D., New York, N. Y.

Ueber die Anwendung der Bettruhe bei Geisteskranken. Von Prof. W. v. Bechterew.

Zur Behandlung der Myotonie. Von Professor W. v. Bechterew in St. Petersburg.

Faulty Metabolism, Nutrition and Growth. By W. A. Walker, M. D., New York.

Ueber Frühsymptome der Tabes dorsalis. Von Prof W. v. Bechterew.

Ueber Epilepsia choreica. Prof. W. v. Bechterew, in St. Petersburg

THE
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ORIGINAL CONTRIBUTIONS.

PATHOLOGY OF EPILEPSY.*

BY DR. N. KRAINSKY.

Physician-in-Charge of the Department of Psychiatry at the Government Hospital at Charcow.

I.

NOTWITHSTANDING the voluminous and very complete literature of epilepsy, systematic investigations as to metabolism in epileptics have not been undertaken until recently, neither a comparison of their metabolism with that of healthy persons, nor for the determination of the connection between metabolic changes and epileptic seizures. The few observations of this sort by several investigators refer merely to individual cases and so permit no important generalization. However Haig's researches were recently published, which demonstrated the close connection of attacks of migraine with variations in the excretion of uric acid, and were likewise extended to epilepsy, so intimately related to migraine, of which this author succeeded in demonstrating a like connection in several cases. Since then Mairet, Bosc, Féré, Voisin, Peron and others have intimated the variations in the toxicity of the epileptic's urine due to the seizures, and here and there in liter-

*Translated by Dr. W. Alfred McCorn, assistant physician at McLean Hospital, Waverly, Mass : late of the Illinois Eastern Hospital for the Insane.

ature opinions have ever been more distinctly expressed that the probable cause of many nervous symptoms is to be sought in an intoxication or auto-intoxication of the organism.

All this led me in 1893, while connected with the clinic of my honorable teacher, Prof. P. J. Kowalewsky, to formulate a scheme for investigating metabolism in epileptics, whose purpose is: 1st, to investigate as completely as possible the metabolism in different forms of epilepsy, and 2nd, to study metabolism under different kinds of treatment. I began these researches early in 1894, when I undertook the management of the Department of Psychiatry of the Government Hospital. From the large amount of material at my disposal I selected the most typical cases and investigated the metabolism of five epileptics for 110 days. From these and other supplementary experiments described in my first paper* I arrived at the conclusion that epileptic seizures have a twofold effect on metabolism. The first changes, due to seizures, occur constantly and are *to a certain degree* pathognomonic; the others, though frequent, have no constant connection with the seizures in the same or different patients. The first refer to the changes in the uric and phosphoric acids; the second—to changes in the quantity of the urine, the urea, chlorides and sulphates. Especially constant was the connection asserted in the paper mentioned between the disease seizures and the excretion of uric acid, whose quantity before the seizures was markedly lowered, while after them it was equally increased, so that the preceding diminution in the quantity of uric acid was fully equalized by the subsequent increase. I then stated, that by reason of the variations in the excretion of uric acid, I did not deem it possible to admit the theory advanced by Haig for the explanation of migraine as applicable to epilepsy also. According to Haig's theory, the attacks of migraine, as well as the epileptic seizures, should be due to the uric acid retained in the blood of the organism prior to the seizure. It seems to me that the relation of the uric acid to the seizures must be very complicated, and that

*Untersuchungen über den Stoffwechsel bei Epileptischen. Charcow. 1895, (Russian)

they can scarcely be produced simply by the infiltration of uric acid into the blood.

After I was convinced that the starting point cited for the investigation of the pathology of epilepsy promised an explanation of many dark phases of this disease, I began the further elaboration of the acquired data early in 1895; a part of the results attained I have presented in a brochure* issued the same year.

I began by a more exact study of the variations in the excretion of uric acid with respect to the epileptic seizures, and proposed:

1. To determine by means of recent, not previously examined epileptics, the constancy of this manifestation.

2. To confirm this connection by several exact quantitative methods for determining the uric acid; and

3. To see whether it was not possible to predict by means of these variations, the occurrence of the epileptic seizure, which I had already done several times in my first paper. These investigations showed:

1. That the connection, in the sense above stated, between the variations in the uric acid excretion and the seizures—is constant.

2. That the three methods for determining the uric acid I employed (those of Ludwig, Haycraft and Hopkins) are adapted to determining the variations mentioned with exact work and chemically pure reagents, and

3. That it is almost always possible, by means of these variations in the excretion of uric acid, to foretell the occurrence of the epileptic seizure.

Hence I believe I am justified in regarding this connection as a manifestation constant in epilepsy, which is subject to several special deviations, *e. g.*, in patients having daily seizures.

A diminution in the excretion of uric acid certainly precedes every seizure; usually occurring twenty-four to forty-eight hours before it. I regard the occurrence of a seizure without such a diminution as impossible, and believe that

*Zur Lehre über die Pathologie der Fallsucht. Charcow, 1895 and 1896. (Russian.)

epileptic seizures will not occur when 0.6—0.8 grms. of uric acid are excreted daily. If the daily quantity of uric acid excreted falls below 0.45, or especially below 0.35, a seizure is usually to be expected with certainty on the third day. On the following, second, day the quantity of uric acid is often normal; on the third day a seizure occurs with a marked increase in the quantity of uric acid, which usually corresponds to the preceding diminution. Consequently there is no change in the actual amount of uric acid, but only in the time of its excretion, in that the previously diminished excretion is compensated for by the subsequently increased elimination.

Still I will say, that it is not always easy to determine the diminished excretion of uric acid before the occurrence of the seizure. If it lasts twenty-four hours, it is of course less easy to note when it coincides with the termination of the first twenty-four hours and the beginning of the second. Yet with some care and attention an error will scarcely be committed.

I must add that in some cases no seizure may occur after the lessened uric acid excretion. Still such cases are rare and the diminution insignificant; usually the day's quantity is over 0.4. I believe that under certain conditions the epileptic's organism can rid itself of the retained uric acid without a seizure; it will then certainly occur when the organism is unable to excrete the retained uric acid in another way. Thus are to be explained the various equivalents of the seizures occurring so commonly in epileptics, as, *e. g.*, the attacks of migraine, epileptic mental disorder, convulsive twitchings, vertigo, etc. Finally in some cases no diminution of the amount of uric acid is to be noticed during the twenty-four hours prior to the seizure; but it falls below the normal for several preceding days, so that the uric acid is not suddenly, but gradually accumulated in the organism.

Further a certain relation may be determined between the lessened quantity of uric acid and the intensity and number of seizures. It may be assumed that usually about 0.25 of uric acid is retained before every seizure. The

greater this amount the more violent will be the expected seizure, and inversely. Finally, in comparison to the average normal, if more than 0.3 of uric acid is retained, it is proper to expect several seizures or a very severe one.

If the conclusions drawn and the experiments were actually correct, they must prove satisfactory in the inverse experiment. If it is possible to predict the occurrence of a seizure by reason of the determinations given, so inversely in a given series of statements, as to the daily quantity of uric acid, it must be possible to determine correctly, by reason of these statements, when seizures have occurred in the patient. And in fact very interesting results are shown by such an experiment made several times. I have often determined in the presence of my colleagues the day's quantity of uric acid excreted and computed the day the seizure occurred, when, by comparison of my results with the notes of the seizures made at the time of their occurrence, my computation has always proven correct.

Thus the fact of the connection between the seizures and the excretion of uric acid is fully confirmed. I believe I may claim that without a variation in the excretion of uric acid an epileptic seizure cannot occur, and that with the quantity of excreted uric acid remaining constant day by day, the epileptic does not have to fear a seizure.

Irrespective of the facts cited that the epileptic seizures are dependent on the excretion of uric acid, it is scarcely possible to explain the significance of uric acid and its excretion to the organism in our present state of knowledge.

Only one would prove possible and that is: not to consider epilepsy a purely "nervous" disease, but as an anomaly of metabolism, which has its basis in a comtamination of the organism by a product of metamorphosis.

There is no doubt that in such a complicated laboratory as the animal organism, under varying conditions an endless series of deviations in the chemical reactions is possible, and that a discretionary combination formed in the given case, may occur either as an indifferent agent or as a more or less virulent poison, according to its properties or its conditions of origin.

Still if an opinion was to be expressed from the facts acquired, it would be the simplest to assume that in epilepsy several deviations occur in the mode of reaction in metabolism, which are actually manifested in lessened production and excretion of uric acid.

As soon as this abnormal reaction attains a certain intensity, a toxic product acting on the central nervous system arises, which produces an irritation of the convulsion centres and the epileptic seizure. It is very possible that the epileptic seizure itself produces the conditions (accumulation of CO_2 in the blood, change in the blood's reaction) so that the further continuance of the abnormal reaction is impossible and the metabolic processes now proceed in their normal manner.

In this way the formative product of metabolism, which induced the epileptic seizure, is again destroyed by the latter. The formation, as well as the destruction of this substance, is closely connected with the formation of uric acid, in that they are manifested in a diminution and an increase of its excretion, dependent on the seizures.

With such a hypothesis it is perfectly clear why all the uric acid retained before the seizure is excreted after it. From this point of view the seizures may be regarded as a sort of safety-valve for the epileptic, as soon as the vital reactions of the organism become abnormal under this or other conditions.

In accordance with my view set forth I can in no way assent to Haig's opinion, that in epilepsy it is a matter of retention and accumulation of uric acid, as such, in the blood.

It must be believed, that if uric acid and its retention actually plays an essential role in the pathology of epilepsy, the effect of many pharmacological agents, which favor the excretion of uric acid by the urine, would not be without effect on the epileptic seizures.

For this purpose a series of experiments was instituted by administering remedies favoring the excretion of uric acid, like piperazin, lysydinum and lithium carbonate. The first two preparations yielded wholly negative results, both as to the seizures and to the excretion of uric acid. Still as

to lithium carbonate, its relation to the seizures was far from indifferent and its effect twofold. In medium doses of 1.0 three times a day it had a decidedly favorable effect: the seizures became more rare, often absent for a long time, etc.; still when the dose was increased to 6,0 *pro die* an opposite effect occurred; symptoms of intoxication supervened, which were manifested in somnolence, blunting of the sensorium, weakness, etc., while the seizures became more frequent and violent.

An analysis of the urine showed that the lithium, while it acted favorably on the seizures, had not increased the excretion of uric acid. Hence it must be concluded that the effect of the lithium on the seizures did not consist in eliminating the uric acid retained in the epileptic's organism, but that owing to its relations to uric acid, it merely created conditions in the epileptic's organism, in consequence of which the abnormal reactions causing the seizure could not occur in the same degree as heretofore.

All this leads us to the hypothesis that the cause of the seizures is to be sought neither in the uric acid nor its accumulation in the blood. Very probably the elimination of uric acid is to be regarded as a product and indication of reactions in the epileptic's organism as yet wholly unknown to us, which after reaching a certain intensity are manifested in seizures. Whereas the seizures must be regarded as a means of self-protection of the organism against the abnormal reaction, which otherwise would unavoidably lead to its destruction.

II.

In the study of the pathology of epilepsy I, with others, had my attention drawn to the pathologico-anatomical changes in epileptics. During the past two years, while hospital prosector, I have had occasion to make autopsies on the bodies of about 20 epileptics. Without going into a description of the changes found, I will only mention the facts, which served as the starting points of my finer researches. A large number of the autopsies of epileptics demonstrate definite changes, which consist chiefly of irregularities in development, as well as asymmetry of the

skull; but so far as known, there are no constant, well defined pathologico-anatomical changes in epilepsy, and such were not found in the cases I examined.

Those of the latter seem especially enigmatical, where in the autopsy of patients dying in status epilepticus, there is found on the most careful examination nothing other than the signs of ordinary asphyxia; thin blood, abundance of post-mortem discolorations, fine ecchymoses in the serous membranes and very marked *rigor mortis*. In the brain, marked, especially venous, hyperæmia was to be proven and in the cardiac muscle, degenerative changes were almost never observed on microscopical examination, to which the cardiac paralysis and symptoms of asphyxia could be ascribed. These cases involuntarily gave rise to the idea that poisoning by a product of metamorphosis is to be assumed as the only possible explanation of the death without definite pathologico-anatomical changes.

Very remarkable was the case where an epileptic, whom I had examined in my first paper,* had died suddenly during a violent epileptic seizure. The most careful autopsy presented no changes other than those above mentioned. This case, observed at a time when I had no data favoring the opinion expressed in the preceding section, directly raised the question of intoxication. It had to be ascertained where the poison was, whose effect was certainly exerted on the nervous system.

This poison must be either in the brain or in the blood, like that of hydrophobia, and manifest itself by acting on the nervous system. To decide this question I used the brain of the patient mentioned (18 hours after death), made an extract of it by converting it into a pulpy mass with water at 45°, and, after evaporating the filtrate at a lower temperature, I injected 0.5 of this extract under the skin of a rabbit. The only effect was a slight rise of temperature. If this experiment was far from complete, it turned my attention to the blood of epileptics and its toxicity. A series of experiments was instituted in this sense, which yielded the following results:

*Untersuchungen über den Stoffwechsel der Epileptiker. The patient C., experiment No. 9, p. 63.

Experiment No. 1. Blood was taken by a cupping glass applied to the cervical region just above the shoulder blades of a 15 year old boy in status epilepticus (he had 51 seizures in 24 hours); a seizure occurred during the procedure, so that the blood was taken at the time of a seizure.

2 cc. of this patient's defibrinated blood was injected subcutaneously into a rabbit's groin. A violent epileptic seizure occurred 2—3 minutes later, which was attended by cries, but especially by clonic spasms and lasted about 2 minutes, when the animal's posterior extremities were found to be paralyzed. Intense dyspnoea and prostration followed the seizure. The rabbit soon recovered, but the paralysis of the posterior extremities was stationary. The same day, 5 hours after the injection, a second seizure occurred. In 4 days the rabbit had about ten seizures, from which it died. A few hours before death 3 seizures occurred, from which the rabbit only slightly recovered. The autopsy presented an extremely dilated bladder containing considerable coagulated blood. The boy, from whom the blood was taken, died the following day in status epilepticus. The autopsy presented no changes other than those mentioned.

Experiment No. 2. Blood was taken by a cupping glass from an epileptic, who had periodical attacks of profound coma, which usually terminated in epileptic seizures, of which, after being defibrinated 1 cc. was injected subcutaneously into a rabbit. A seizure occurred after 2—3 minutes which left a stationary paralysis of the posterior extremities. The rabbit soon recovered, was lively and had a good appetite. In the course of 3 days 5—6 very prolonged seizures were observed, which were followed by intense dyspnoea and prostration; still the rabbit quickly recovered. It died on the fourth day; the autopsy presented no changes.

After these experiments naturally follows the solution of the question of the effect of blood taken from the same patient, in like quantity and under like conditions, during the interval between two seizures.

Experiment No. 3. 2 cc. of blood were taken from the same patient as in the preceding experiment between the seizures and injected subcutaneously into a rabbit. No effect followed. In about one-fourth of an hour 2 cc. were again injected without any result. During the whole time the rabbit was under observation it remained perfectly well.

Experiment No. 4. During an attack of epileptic coma, blood was taken from the same patient and 3 cc. injected subcutaneously into the same rabbit as in experiment No. 3. Paralysis of the posterior extremities occurred almost immediately and two minutes later a violent epileptic seizure with cries and clonic spasms. The post epileptic condition was very marked. The animal was almost motionless for some time and could neither execute movements nor maintain its usual position. It lived eight days and during this time my colleagues and I were able to observe many typical epileptic seizures with very marked postepileptic catalepsy. It may be remarked that the paralyzed posterior extremities participated in the con-

vulsions, and that the seizure could be induced artificially by more or less strongly irritating the animal. The rabbit had two or three seizures within twenty-four hours. On the eighth day it died from frequently recurring seizures; four seizures had occurred in the morning, after which it soon died in a condition similar to epileptic coma. The autopsy yielded negative results. A paralysis of the bladder was not observed and the functions of the intestines were perfectly normal during life.

Experiment No. 5. In an interval between the seizures blood was taken from the same patient and injected subcutaneously into a rabbit. No effect followed.

Further experiments of this sort prove that when blood of an epileptic is taken during the interval and soon after a seizure and 2—4—6 cc. injected subcutaneously into a rabbit, no morbid symptoms will be observed. While the blood that is taken during status epilepticus or during the *severe* epileptic state preceding the seizure, and 1—3 cc. injected subcutaneously into a rabbit, immediately produces paralysis of the posterior extremities, after which periodic seizures are observed and the animal usually dies in 4 to 6 days.

It must be remarked that in rabbits poisoned with blood the seizures generally occur spontaneously, yet more often when the animal is disturbed. In these cases we have the analogous manifestation, as it is observed in epileptics, when the organism, electrified as it were, awaits the first sufficient shock to respond with a reaction in the form of an epileptic seizure.

It is much harder to ascertain the blood's toxicity in epileptics in the individual seizures and in the milder epileptic manifestations; at any rate the above mentioned symptoms have not been caused by blood taken ten to fifteen minutes after a single, even, violent seizure when 4—6 cc. were injected subcutaneously into a rabbit.

The results attained can be appreciated, if we reflect how great must be the quantity of the poison contained in the epileptic's blood when 1—3 cc. are able to produce a toxic effect on rabbits. It is very hard to choose the proper moment before the seizure; but then a far greater quantity of blood is required to attain the same result we get from injection of blood which has been taken from patients in a severe epileptic condition.

The cause of the paralysis of the posterior extremities is hard to locate, and I consider it the most plausible to regard it as the local effect of the poisonous agent.

In spite of the considerable number of my experiments with injections of epileptic blood into rabbits, which was taken at different times before and after the seizures, I must remark that these experiments are not readily explained. I have been able to convince myself, that the blood of an epileptic at the time of the severe epileptic state produces in the rabbit periodical convulsive seizures and death in a few days. On the other hand, it is also confirmed that subcutaneous injections of 5 cc. of blood taken from many epileptics during the intervals, as well as after individual seizures, produce no toxic effect and the animals remain perfectly healthy.

Recently I had an opportunity to observe a third kind of cases, in which the rabbits remained perfectly healthy for a few days after the injections of 5 or 10 cc. of epileptic blood, but sickened after 2—3 weeks. They lost in body weight, emaciated and died from progressive emaciation in 1—2 weeks after becoming ill. Paralyses occur at the conclusion of the disease, particularly of the posterior extremities and the rabbits die in a comatose condition. These rabbits lay on their side, for in their efforts to get up they fall sidewise. Marked, progressive ataxia is to be observed in their movements.

It is to be remarked, that the animals had a good appetite until their death and even manifested a certain voracity. The autopsy showed no changes.

Convulsive seizures are not to be observed in the animals.

The results described occur (very often) after injections of the blood of those epileptics, who have frequent recurrent, daily seizures.

Owing to all these experiments, which confirm the hypothesis of the formation of a poisonous product preceding the seizures and its destruction by them in the organism of the epileptic, several circumstances must still be consid-

ered, which arise from the experiments of injecting epileptic blood.

If the toxic effect of the blood taken from the epileptic during status epilepticus depends solely on the effect of the poison contained in the quantity taken, then the occurrence of a single or of several seizures in rapid succession, as well as the paresis of the extremities and the other symptoms, are fully explained as the effect of the injection. But from this point of view the periodical repetition of the convulsive seizures in the course of the same or the following day, does not seem explainable.

If it is assumed that the poison causing the convulsion is destroyed during the seizure, so apparently an immediate repetition of the seizure can only be expected when the poison has not been wholly destroyed.

The occurrence of the seizure later awakens the idea that the blood taken from the epileptic at the time of the severe epileptic condition not only exercises a toxic effect owing to the poison it contains, but that it also possesses the property of producing in the rabbit's organism, into which it is injected, a periodical production of the same poison, as exists in the blood injected. This effect resembles in a way that of the ferments.

At any rate the question of the toxicity of the blood of epileptics is very complicated and necessitates great care in the interpretation of the results which are not always clear.

Many papers regarding this question have appeared recently. Legrain* found that the blood serum of paretics, taken at the time of the epileptiform or apoplectiform seizures, possesses a pronounced toxic effect.

D'Abundo† found the same with regard to epilepsy.

D'Agostini‡ found the gastric juice to possess a very marked toxic property prior to the seizure.

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*Legrain, Annales médico-psychologiques, 1895, I.

†D'Abundo, Sulla azione tossica e battericida del siero di sangue dei parri. Rivis. sperimentale d. freniatria v. XVII.

‡D'Agostini, Rivisia di pathologia nervosa e mentale No. 3; Gazetta degli ospedalle delle cliniche 28 März.

The results of all these works fully agree with the data I secured and so compel attention to be directed to the blood as the carrier of the epileptic poison.

III.

Taking cognizance of the facts mentioned, I now reflected whether it is not possible, by reason of them, to come nearer the solution of the question as to the chemical nature of the presumed reactions, which cause the production of the poisonous product. This does not seem to me impossible, the more so, as the method to be pursued has already been indicated, namely: the connection of these reactions with the variations in the excretion of uric acid, which has been sufficiently elucidated. First of all, of course, it must be decided whether these variations are to be regarded merely as anomalies in the excretion of uric acid, or as deviations in its production. This question in the latter sense has already been sufficiently solved by the data cited in the preceding paper, particularly by the experiments with lithium. These latter show that the organism, even in the employment of a remedy so energetically favoring the excretion of uric acid, is unable to excrete larger quantities of it than is formed in the organism. I believe that the nature of epilepsy consists, not in a retention of uric acid, but in a change in its conditions of origin. Hence the analogy given by Haig and the pathology of epilepsy identical with gout is to be changed in the sense that gout is merely an anomaly of the excretion of uric acid, while epilepsy is an abnormality in its formation; even though both diseases, so different in their nature, show the same changes in the uric acid contained in the day's quantity of urine.

In my above researches* a series of facts proves that the toxic effect causing the epileptic manifestations, contrary to Haig's theory, is not to be ascribed to the uric acid as such.

Here the classical work of Prof. Zalessky is to be mentioned, according to which, after ligature of the ureters

*Zur Lehre über die Pathologie der Fallsucht Heft, I, p. 46.

in birds, uric acid intoxication did not follow, but death occurred in consequence of mechanical obturation of all the lymph vessels, even in the heart, by uric acid deposits. We must further think of gout and its uric acid deposits, as well as of the above mentioned experiments of Frerichs and Wöhler.

Then the question at once arose, whether the supposed agent, closely related to uric acid, did not belong to one and the same group of chemical combinations. A similar import would be possible if it could be admitted that, instead of normal uric acid, another substance of the same group is formed; the formation of this substance as a substitute for uric acid would then be connected with its lessened production, and cease as soon as the reaction returns to its normal state.

This question we can at once decide, for almost all derivatives of the uric acid group possess the property of furnishing silver compounds in an ammoniacal solution. This is a property which is possessed by the biureides, ureides, uro-acids, and some other compounds, *e. g.*, tyrosin.

Therefore if we use Haycraft's method, which depends upon the combination of these compounds with silver in an ammoniacal solution, we would not be able to find any variations in the excretion of uric acid accompanying the attacks, because the diminution of uric acid would be equalized by the increase in the other compounds whose reaction to Haycraft's method is exactly the same as that of uric acid.

Consequently it must be admitted that the substance sought for does not belong to the uric acid group and there is only one way left for our further consideration—the examination of the conditions by which uric acid is formed in the organism. In this respect we have a very insufficient number of facts at command; the most plausible possessed is the hypothesis of Horbaczewsky* and the researches of Kossel, which point to a connection between the formation of uric acid and the destruction of nuclein (chiefly from leucocytes).

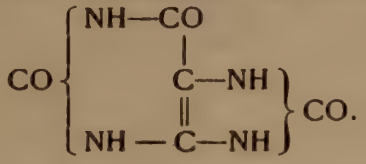
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*Monatshefte f. Chemie Bd. 12, p. 221.

The hypothesis mentioned is far from explaining the nature of the manifestations occurring in the epileptic's organism. The view formerly entertained, according to which the uric acid was considered the product of insufficient oxidation of the nitrogenous elements, is almost wholly abandoned at present. As we will see from what follows, this view, depending on the mere fact of the formation of the urea by oxidation of uric acid, is also incorrect theoretically.

As I could find no suitable explanation of the conditions of origin of uric acid in the organism, I was finally necessitated to hold to theoretical considerations, whereby I took as a basis the various reactions of the synthesis of uric acid as given by many chemists.

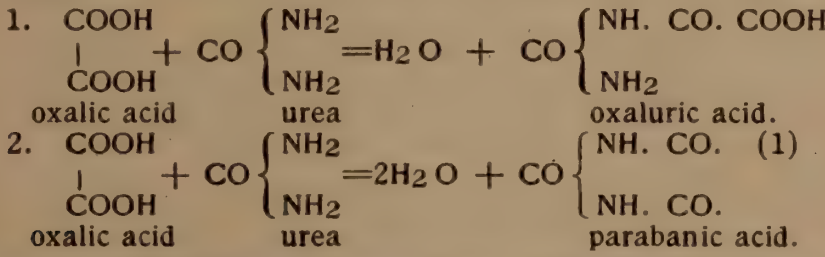
Uric acid represents the biureide of the orthohydrate of tartronic acid not existing in the free state. The biureides, which are represented by uric acid in the animal organism, are characterized by two parts of urea belonging to their constitution, which are combined with an acid radicle.



The biureides are synthetically produced from the less complicated combinations, the ureides, which are characterized by the presence of only one part of urea.

The combination of urea with acid serves as the starting-point for the formation of all uric acid derivatives.

One part of urea in combination with one part of an organic acid creates uro-acids with liberation of one part of H_2O; but the monoureides originate on liberation of two parts of H_2O.



By means of different reactions biureides are synthetically produced from substances of this series, for which

*This reaction was first given by Prof. J. M. Ponomareff and served as the basis of all further syntheses of the substances of the urea group.

the introduction of a second part of urea in the organism is essential.

The origin of uric acid may be readily traced from the ureid, as, *e. g.*, from parabanic acid, according to the following equation:

$$C_3H_2N_2O_3 + CON_2H_4 = C_5H_4N_4O_3 + O + H_2O^*$$

Parabanic acid — urea — uric acid

So for the origin of the biureid from the ureid it is only essential that the latter enters into reaction with a new part of urea, in which it is not unconditionally necessary for the formation of the biureid to occur by the way of the monoureid. Horbaczewsky's well-known synthesis serves as evidence—the formation of uric acid by fusing glycocol with urea.

But no matter which way we take, in any case urea serves as the starting point for the formation of uric acid, so that the completion of the reaction will prove to be impossible if one of the agents is not a urea part.

Hence, independently of the scheme chosen for guidance, the process of origin of uric acid must be regarded as a synthesis, in which one of the factors essential to its origin must be urea in any case.

So it follows that uric acid can in no way be considered as a product of complete oxidation of nitrogenous substances, which by their further oxidation produce urea, and uric acid in particular cannot be assumed to be a prior stage of urea. In nature it never occurs that the whole represents one of its own parts; but such an inadmissibility is certainly committed, if we assume uric acid to be the prior stage in the formation of urea.

The origin of uric acid must consequently be regarded as a complete reaction, which can only occur in the organism after the urea has been completely formed.

All nature is so comformable to law that it is hard

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*If the reaction according to this equation is assumed, it is then clear why no ureid (in the given case no parabanic acid) is found in the urine. In fact very similar conditions exist in the blood, *i. e.*, the presence of urea and CO^2, with which the ureid (parabanic acid) is combined, when after taking up the remnant of urea by a part of the latter the biureid (uric acid) occurs as the result.

to admit mere chance in the formation of one or the other of the terminal products of metamorphosis, according to the degree of oxidation.

It is very probable that every single substance excreted by the urine is a terminal product of independent reactions, whose complete correspondence throughout is not essential. So, *e. g.*, urea is probably a metabolic product of albumen in general and especially of Voit's circulating albumen.

Creatin also is probably a product of the reactions occurring in the muscular tissue. But uric acid appears to be a metabolic product of nucleo-albumen, by whose decomposition substances are formed, which are not excreted as such, but which must form a series of combinations with urea, whose terminal product appears to be uric acid. (Such substances are perhaps oxalic acid, or the substances which are characterized by the radicle of an organic acid contained in them.) The actual waste products of nucleo-albumen are unknown to us, and we choose oxalic acid merely as a combination the most readily explaining the above cited reactions. But in fact it probably has a stated role,—independently of its presence in urine; it is known that the quantity of oxalic acid in the urine increases on standing, and this increase is ascribed to the decomposition of the uric acid.

We then represent the formation of the uric acid in the organism in the way that different tissue elements—probably those containing nuclear bodies—form substances among the waste products approximating perhaps oxalic acid, or are characterized by the presence of an acid radicle in their molecules, which are not excreted from the organism as such, but immediately enter into a synthetic reaction with the urea already existing in the tissues and, corresponding to the above equation, fix, as it were, a certain quantity of it. The uric acid arises as a terminal product of the reaction; as intermediate products—oxal-uric and parabanic acids and other ureides and uro-acids.

By the hypothesis mentioned the fact may be sufficiently explained that in birds, amphibians and reptiles, urea does not occur as the terminal product of nitrogenous

substances, but uric acid. It has been thought to explain this fact, as known, by claiming the oxidation is not complete and instead of urea a previous stage of it is found—uric acid. But the matter is apparently explained by the fact that the organism of these animals is very rich in nuclear substance and the nucleated blood corpuscles form waste products, which with urea form uric acid. According to this view the percentage of urea transformed and excreted as uric acid will be proportionate in the different classes of animals to the relative richness of the tissues in nuclein substances.

Consequently we may represent the formation of uric acid in the organism as a synthesis: $a+b=c$, in which a is the derivative of the organic acid characterized by the radical b—the urea and c the uric acid. As the properties of the substance sought for and its connection with the formation of uric acid are known to us, it is possible to seek the substance either in the uric acid, *i. e.*, in c, or in one of its components, *i. e.*, in a or b. We know that the quantity c is lessened before the seizure and increased after it. This is possible: 1. When in consequence of changed conditions of reaction, although the substances a and b are present in sufficient quantity, they cannot combine; and 2. When one of the substances entering into the reaction is not present in sufficient quantity. It is easy to see that this latter may be traced to the first, when we consider that the cause of the insufficient formation of one of the components must unconditionally depend on the irregular process of the reactions peculiar to the healthy organism.

The same result would be attained, if instead of one of the substances a or b, another, if a similar body, would be formed *in part*,* *e. g.*, b_1 instead of b. Then apparently $a+b_1$ would not give c, and the origin of c would be prevented, as a will only react with the substance b, whose quantity would be diminished, owing to the transformation of a part of b into b_1.

As soon as the abnormal reaction of the formation of

*A complete transformation cannot be spoken of, as in this case b would be completely absent and the formation of c, *i. e.*, the uric acid must be completely interrupted.

b_1 instead of b ceases, the normal reaction returns, $a+b$ again gives c, which is excreted in the same quantity as formerly.

The deviation described in the mode of origin of uric acid, *i. e.*, of c, may be graphically represented by the following line:



In which the descending part of the curve corresponds to the beginning of the irregular reaction, and the ascending to its cessation; the line itself indicating the normal formation of uric acid.

But in our case a further condition is present as follows: After the reaction has resumed its former course, c is not only formed in the previous quantity, but in excess, which compensates for the prior deficiency, what may be graphically represented by the following curve:



The fact cited can only occur under the condition, that the substance b contains the substance b^1 and in its decomposition yields as much of this as it contains, *i. e.*, under the condition that $b^1=b+x$. Only under these conditions will it be comprehensible why the lessened formation of c (while the reacting substance b is partly substituted for its approximate substance b^1) is again equalized, as soon as b^1 decomposes and thus the whole quantity of b is liberated, which had not combined with a.

But if instead of b, b^1 is formed, so a will only unite with substance b and of c such a lessened quantity than formerly will be yielded as greater is the part of b that was transformed into b^1. On the other hand, of the substance a such a lessened quantity will enter into reaction, as more of b is transformed into b^1. The remnant of the substance a, not employed for the formation of c is retained in the organism and can then only enter into reaction, when b^1 after its decomposition will again yield the entire essential quantity of b.

All these considerations lead to the following proposition: the proposed product of metabolism must not be sought in the uric acid group, *i. e.*, in *c*, but in the group of one of the substances forming it, *i. e.*, in *a* or *b*.

We thus acquire new and more definite data for judging of the nature of the substance sought for, and:

1. It must belong to the group of one of the substances *a* or *b*, of which *a* is the derivative of organic acids and *b* of urea.

2. According to the reactions of its formation it must be related to *a* or *b*; this is to be concluded from the only partial deviation in the mode of reaction. If the substance *b* was wholly transformed into b^1, *c* would not be formed at all.

3. The substance sought for must be very closely related in its composition to one of the substances named, and in its decomposition yield the same quantity of the latter, in which this is contained in one of its molecules, *i. e.*, $b_1 = b-x$.

4. The substance must be of very slight stability and decompose in the sense stated in the heading 3 (under the influence of conditions, which are closely related to those in the epileptic's organism during the seizure).

5. The substance must possess extremely toxic properties, contrary to the corresponding substances *a* or *b*, in spite of the fact that it differs only slightly from the latter in its chemical composition.

After explanation of the points cited, the further solution of the question offers no difficulties.

According to 1, the derivatives of urea must be the first to be considered, as it is best known to us, and second, it could be foreseen that among the derivatives of the organic acids no combinations are to be found, which could answer to the conditions cited, as they represent more or less stable compounds.

According to 2, carbamic acid must be considered first of all, which is an acid derivative of H_2CO_3 analogous to urea, and is alone closely related to urea in the reaction of its formation (see below).

Among the derivatives of carbamic acid, carbamate of ammonium alone corresponds to 3, as one of its molecules by loss of a molecule of H_2O produces a molecule of urea; whereas the potassium and sodium salts produce a molecule of urea in decomposition of two parts of this salt.

In accordance with 4, carbamate of ammonium is an extremely unstable compound, which on heating to 135—140°, and by the action of the alternating current passes into urea.

In respect to 5, there are statements in literature by Massen, Hahn, Nencki and Pawlow regarding the great toxicity of carbamic acid.

By reason of the facts cited the question now arises, whether the seizures in epileptics are not due to the accumulation or formation of carbamate of ammonium in the patient's organism, in that the origin of carbamate of ammonium occurs at the expense of urea, namely of that part which is essential for the synthetic formation of uric acid, and which perhaps in consequence of the altered condition of life in the epileptic's organism undergoes changes, in that it takes up a molecule of water and passes into carbamate of ammonium, which can neither enter into the formation of uric acid (hence its lessened formation and excretion), nor be simultaneously excreted with the total quantity of urea. That it is a matter of this small part of the total quantity of urea, is evident that in epileptics no constant changes in the excretion of urea, in connection with the seizures are to be observed, and that second, as will be perceived below, the total quantity of urea cannot be transformed into carbamate of ammonium, as a small dose of it suffices to poison the organism.

As the carbamate of ammonium remains in the blood, it accumulates until it produces a seizure. During this it is transformed into urea with loss of a molecule of water, which immediately enters into synthetic reaction and is excreted in form of the previously retained quantity of uric acid.

IV.

Carbamic acid ($CO\begin{cases}NH_2\\OH\end{cases}$) represents an acid derivative of carbonic acid (H_2CO_3), which is completely analogous to the corresponding neutral derivative-urea $CO\begin{cases}NH_2\\NH_2\end{cases}$. The acid is not known in a free state; in the form of salts it has been quite closely studied, especially in Drechsel's researches. In its origin and synthesis carbamic acid is analogous to urea, for both compounds arise:

1. By the action of ammonia gas on ethyl carbonate;

2. When dry ammonia gas and dry carbonic acid are brought together in which case carbamate of ammonium is produced ($CO\begin{cases}NH_2\\OH.NH_3\end{cases}$), which by heating to 135-140°, and by the action of the alternating current loses one molecule of water and is tranformed into urea.

3. By the action of carbonic acid on chloranhydrides.

Carbamate of ammonium is a very unstable compound remaining unchanged only in the dry state; in aqueous solution it is quickly decomposed, and by taking up a molecule of H_2O is transformed into ammonium carbonate. By heating to 135-140°, and by the action of the alternating current carbamate of ammonium loses a molecule of H_2O and passes into urea. Carbonate of ammonium is also readily decomposed and almost always contains carbamate of ammonium in greater or less quantity.

Commercial carbonate of ammonium is a mixture of three salts of the acid and neutral carbonate and carbamate of ammonium. These three salts freshly prepared readily pass into each other, hence experimentation with them is very difficult.

Carbamate of ammonium is a white powder of a marked neutral reaction and a strong odor of ammonia; it arises from the action of dry carbonic acid upon dry ammonia gas; its aqueous solution reacts with Nessler's reagent and gives a black precipitate with mercuric nitrate.

Carbamic acid was discovered by Drechsel* as an oxidation product of glycocol, leucin and other similar compounds by the action of ammonium manganate in alkaline reaction. Drechsel further proved that carbamic acid arises from oxidation of albumen, of sodium formate and in general wherever nitro-carbons are oxidized in alkaline solution, and where CO_2 combined with NH_3 in *statu nascenti*. Subsequently Drechsel generalized this proposition still more, in that he wholly excluded the formation of CO_2 and of NH_3 in *statu nascenti*†.

As analogous conditions are present in the animal organism, Drechsel attempted to determine the presence of carbamic acid in the blood, which he succeeded in doing by means of quite a complicated method, and it led him to advance the following new idea as to the origin of urea in the organism. Proceeding from the fact that in the oxidation of the amido-acids (glycocol) he never succeeded in getting urea, but merely carbamic acid, he considered this as a preliminary step to the formation of urea in the organism, which, as he presumed, is formed from a carbamate. Drechsel concludes his work with the following scheme: decomposition of the albuminous bodies into the long known products: leucin, tyrosin, glycocol, ammonia, etc. In their direct and indirect oxidation they produce carbamic acid, which, combining with sodium, create a salt decomposing under the action of a ferment into urea and carbonate of sodium.

Still earlier, even in 1869 and 1872, Schultzen and Nencki were of the opinion that the amido-acids were oxidized in the organism into carbamic acid, and that by withdrawal of a molecule of water, urea was formed from carbamate of ammonium, because the amido-acids introduced into the organism were excreted in the form of urea.

Later Drechsel and Abel demonstrated the presence of carbamic acid in the urine of the horse, but did not find it in the urine of men and dogs.

In 1892 a very interesting work by Hahn, Massen,

*Jour. f. Chemie Bd. 12.
†Jour. f. Prakt. Chemie N. S. Bd. 16.

Nencki and Pawlow appeared from the Institute of Experimental Medicine in Petersburg, which was for the purpose of investigating those processes produced in animals by making a fistula between the portal vein and the lower vena cava. The work cited is of greater importance, as one of the investigators, Prof. Nencki, is an eminent authority as to the significance of carbamic acid, and has studied this question thoroughly. In consequence of the Eck fistula operation these authors observed a very complicated type of animal intoxication, accompanied especially by nervous symptoms. It would be beyond the scope of the present article to here describe the type of intoxication observed by these authors; I will only intimate that the authors, owing to having always found carbamic acid in the urine of the animals operated upon, raise the question whether the manifestations observed could not be due to poisoning by carbamic acid. This acid would thus represent an intermediate stage of albumen metamorphosis and, corresponding to the opinion of Schröder and Minkowski, be transformed into urea in the liver. In the dogs operated upon the type of poisoning with this substance must be observed: the portal blood, saturated with the intermediate products mentioned, enters the general circulation instead of passing through the liver, where it would be relieved of its pernicious substances, acts thus on the nervous system and puts it into a morbid state.

After a number of experiments by introducing carbamate of sodium and calcium into the stomach and veins of animals, the authors came to the conclusion that the type of intoxication in this case is wholly identical with that which is observed in dogs operated upon according to Eck. I will accurately describe this type as given by the authors named:

"After introducing carbamate of sodium and calcium into the blood somnolence occurred first; the liveliest animals prefer to lie down immediately after the injection. At first they hold up their heads, after a time they gradually let them droop. If the heads droop suddenly, the animals again awaken, raise their heads; but the former condition soon

returns. The animals doze, likewise resist going to sleep as it were; but finally they lie down entirely, stretch out their heads on their forelegs and close their eyes. But they sleep very lightly; they often raise their heads and change the position of their bodies; the least noise awakens them immediately. Motor ataxia also occurs besides the somnolence. The animals do not move their limbs, particularly the hind legs, with their usual dexterity. The legs often give way, knock against each other, etc. This effect is produced by a dose of about 0.25 to 1 kg. of body weight. In somewhat larger doses the animals move, although their movements are very uncertain; the sense of sight is affected, for the animals run against objects. More often they run constantly, yet suddenly stop in the midst of the most active movements, as if petrified, and remain immovable for a long time. This may serve as an effective example of the cataleptic condition occurring suddenly! Still more often the animals pass into the latter state gradually. In still larger doses convulsions occur, in mild cases, clonic. *The animals have a true epileptic seizure with clonic spasms, salivation and dilated pupils.* In still larger doses tetanic spasms with opisthotonus and suspended respiration occur. In this latter case the animals usually fal suddenly, or gradually in consequence of inhibited respiration with still beating heart. *In case of an epileptic seizure the animals generally recover, in which the return to the norm is always consummated through a cataleptic attack.*" The authors present the following scheme of poisoning with carbamic acid: 1. Somnolence (with ataxia), 2. excitement (likewise with ataxia and blindness), 3. catalepsy (with anaesthesia), 4. epilepsy and 5. tetanie.

On introducing carbamic salts into the stomach of healthy animals no sysptoms of poisoning were observed. Here then it is the same as with many other poisons, which lose their toxic effect by passing through the liver. But in dogs, on which Eck's fistula had been made, a marked intoxication occurred from carbamate of sodium.

The authors further claimed to have introduced carbamate salts, which very readily decompose, so it is conceiv-

able that their effect is to be ascribed to their decomposition products and the ammonium salt.

These authors differentiated the symptoms of intoxication with carbamic acid from those which occur from poisoning with ammonia.

Carbamic acid acts in a peculiar way and by no means the same as ammonium salts. "Characteristic of the effect produced by ammonia is, as known, the reflex irritability, which lasts from the beginning of the effect to its end. Some authors claim depression and a comatose condition are produced in animals by ammonium intoxication, yet: 1. this is only observed after convulsive symptoms, and 2. according to Drechsel, carbamate of ammonium is always combined with commercial carbonate of ammonium."

"If in the action of carbamic acid an increase of the reflex excitability is likewise to be noted, this occurs only for a short time, and it is still doubtful whether it is due either to the mixture of ammonium primarily, or to its formation by the partial decomposition of the carbamic acid. The condition of the animals opposite to excitement always corresponds to the longest characteristic stage of intoxication, when they appear completely insensible, without any reaction, as during the cataleptic attack, or the symptoms of marked anaesthesia are present in an otherwise normal condition, as this is observed after catalepsy."

"Further in the stage of somnolence of ammonium intoxication the symptoms of catalepsy and blindness are not mentioned, which are facts essentially differentiating the effect of carbamic acid from that of ammonium."

Now in regard to this difference between the intoxication types of ammonium and carbamic acid mentioned by these authors, their finer researches have proven, as Prof. J. P. Pawlow has kindly communicated to me, that no essential difference exists in the effects of ammonium and carbamic acid. The work of Jurinski* from the laboratory of Prof. Pawlow, which is devoted to the careful study of the effect of ammonium chloride on the nervous system,

*Jurinski, Beiträge zur Physiologie und Pharmakologie des Central-Nervensystems. Archiv f. biolog. Studien Bd. III, Lfg. 3.

proves that the type of ammonium poisoning described by the former authors is not stated accurately, but that the first stage of poisoning—the stage of depression—is very manifest. In their last paper on the presence of ammonium in the animal organism and tissues Nencki, Pawlow and Zaleski declare the effect of ammonium to be wholly identical with that of carbamic acid.

According to the late investigations of Profs. Nencki and Pawlow the carbamic acid introduced into the organism acts in the form of ammonium, which either is combined with the carbamic acid as an ammonium salt, or is liberated from an acid molecule in decomposition of the carbamic acid. Prof. Nencki regards the union of ammonium with carbamic acid as that form in which the first is retained in the blood. For the same reasons Profs. Nencki and Zaleski proposed the method of quantitative determination of the carbamic acid in the tissues and fluids of the animal organism by means of the excretion of the total quantity of ammonia, and in this way ascertain the quantity of ammonia, *i. e.*, of carbamic acid in the blood.

Of the other statements of these authors it must be mentioned, that they hold to the proposition advanced by Nencki and Drechsel—urea arises from the carbamic acid normally formed in the blood and from its ammonium salt on liberation of a molecule of H_2O—, still without deciding whether this transformation occurs exclusively in the liver.

Hence it is to be perceived from the works cited, that many of the symptoms peculiar to carbamic acid poisoning were differentiated by these authors as symptoms of *purely epileptic character.* Now if the type described by them is more carefully studied and compared with the different symptoms occurring in epileptics, it is perceived that many of these latter are extremely similar, indeed almost identical.

These facts, in connection with those above cited, led me to experiments of introducing carbamate salts into the animal organism, in the hope of explaining the pathogenesis of epilepsy by the study of the symptoms produced by them.

As my work extends only to the effect of carbamic

acid, but not to its relation to the liver, I will not go further into the latest works by Pick, Lieblein and others, which were made, to secure the data desired by the Russian authors.

V.

In the experimental researches for the confirmation of my presumptions stated above, I chose the carbamate of ammonium chiefly. For each of the experiments the salt was freshly prepared by combining dry carbonic acid and dry ammonia gas*. The experiments were made on rabbits.

By reason of my experiments I can now in general repeat almost word for word the type of symptoms observed by Hahn, Massen, Nencki and Pawlow. The same sequence of symptoms, the same manifestations, which the authors had observed in dogs on introducing carbamate of calcium and sodium, I could now see confirmed in my rabbits after injections of carbamate of ammonium.

The only difference was as to details. From the large number of experiments the following may be stated: in rabbits of medium size no morbid symptoms occur after subcutaneous injection of 0.1—0.2 of freshly prepared carbamate of ammonium, and the animals remain perfectly healthy, with the exception of manifestations of local pain. After injection of a larger dose (0.3—0.4) the rabbits remained perfectly normal for 10—20 minutes, but then somnolence and ataxia occurred quite rapidly, exactly as described by the Russian authors. Still the animals usually reacted to calls or noises, "*they likewise resisted going to sleep*, as it were;" at this time the reflexes were still unchanged—at least the reaction to noises was not marked. After about five minutes a very marked increase of the reflexes occurred quite quickly, and from time to time morbid twitchings and rigors were observed. Any noise, as well as any contact, produced a sudden rigor in the animals previously sleeping quietly.

This condition lasted from 1—4 minutes, when usually a typical epileptic seizure suddenly occurred, which occa-

*It is essential that the salt be freshly prepared, as it loses much of its toxicity in solution, in that it soon changes into ammonium carbonate.

sionally attacked the animals while standing. More often a period of tonic spasms, accompanied by a cry, occurred, lasting from ½ to 1 minute, followed by a period of clonic spasms gradually becoming weaker and 2 to 4 minutes after the beginning of the seizure a post-epileptic comatose condition occurred: the animals lay motionless on their side, each respiratory movement accompanied by a morbid spasm and more often impeded, stertorous breathing may be perceived. The reflexes are weakened, the pupils contracted. The morbid breathing gradually abates, calm respiration occurs, the animals react to irritation very slightly, the reflexes are lessened, the extremities flaccid. Profound, calm sleep follows.

If the seizure is not repeated, the animals recover completely in 1 or 2 hours, if still for some time sluggishness and ataxia is to be noticed in them. During the seizure the pupils are dilated, without reacting to light, salivation always occurs, very often passing of feces and urine and pinching the tongue between the teeth. If, after the first seizure, the exaggeration of the reflexes and morbid twitchings do not cease in 10 or 15 minutes, another epileptic seizure usually occurs, when the subsequent seizures become weaker and of shorter duration. The larger the dose of carbamate of ammonium given by subdermal injection, the quicker and more violent will be the seizure; but if the dose exceeds 0.5, a number of seizures will occur, which are separated from each other by more or less long intervals, and the animals usually die during one of them. In the intervals, convulsive twitchings and several clonic spasms are observed. From an injection of a larger dose of carbamate of ammonium typical status epilepticus occurs. Here the manifestation mentioned by the authors cited must be spoken of, namely that "after an epileptic seizure the animals quickly recover, when the return to the normal is effected through a cataleptic state," *i. e.*, the impression arises that after each seizure the completely hopeless state of the animal would be improved. As greater the amount of poison contained in the organism, the greater will be the number of seizures with which the animal reacts; the seiz-

ures cease as soon as the poison is either destroyed or eliminated from the organism. It is of interest that in a poisoned animal the seizures can often be produced artificially, *e. g.*, by means of a loud sound. This fact has already attracted the attention of the former authors and explains to us why in epileptics fright or other violent excitement often produces a seizure, but which it only excites, but does not cause. Those rabbits, which recover from the seizures, are perfectly healthy the following day, even in a few hours after the seizure. Still after several seizures the rabbits often die in a post-epileptic comatose condition; in the animals recovering paresis of the posterior extremities is observed.

If the condition from the action of carbamate of ammonium on rabbits is compared with that which is produced by injection of epileptic blood taken during severe seizures, they are found to have much in common. Only it is to be remarked that in blood injections somnolence and ataxia are not observed prior to the seizures. The seizure occurs suddenly, and somnolence in animals is to be noticed after the seizure and before death. The origin of the paresis of the posterior extremities remains unexplained; only this manifestation is actually to be noticed in blood injections as also after seizures produced by carbamate of ammonium.

The condition described by me does not differ from that described by Massen and Pawlow. I might still more emphasize the "epileptoid" character of the seizures, for the authors named did not sufficiently characterize the attacks as epileptic.

Hence the conviction gained that carbamate of ammonium injected subcutaneously or into the blood of animals produced true epileptic seizures, which the authors named had already intimated, fully confirmed my theoretical propositions and led me to continue my work in this direction.

After the toxic effect of carbamate of ammonium was now explained, the question of course arose whether this effect is to be ascribed to carbamic acid or to the ammonium. It was decided to be carbamic acid in the first works cited of the Petersburg authors. At the time I undertook the

investigation of this question the later works of these authors were unknown to me, and hence I will continue with the description of my investigations, in spite of the similarity of the results arrived at by them and myself.

If different ammonium salts are injected subcutaneously into rabbits, the general conclusion must be arrived at, that all these salts produce a condition very similar to that above described. It was proven that there is no difference between the effect of carbamate of ammonium and the other ammonium salts; still the dose causing poisoning varies greatly as to the different salts.

Especially the purest possible ammonium carbonate injected subcutaneously in the same dose as the carbamate of ammonium (0.3 to 1 kg.) acts much weaker than the latter. Immediately after the injection no symptoms are occasionally observed; still more often only the first phase of the poisoning—the stage of depression—occurs, from which the animals completely recover in 10 to 20 minutes. In larger doses marked intoxication occurs and epileptic seizures follow the first stage; yet this second stage usually appears somewhat later (about ½ hour) than when carbamate of ammonium has been injected. The more impure the preparation of ammonium carbonate, and the more carbamate of ammonium it contains, the more marked is the second stage of intoxication and the quicker it occurs. On the other hand it is unquestionable that the animal organism possesses a very great power to destroy the carbonate and carbamate of ammonium introduced into it; at any rate these salts, injected in small amounts, may be introduced to quite large doses without injuring the organism—which is a fact long known*.

From these data it may be concluded that the organism can quickly and entirely free itself of small doses of carbonate of ammonium, either by ordinary excretion or by transforming it into urea. But if the quantity of the salt is so large that the organism cannot destroy or remove the poison, the first stage of the intoxication—the depression—

*Paschutin, Vorträge über allg. Pathologie. Bd. II. (Russian.)

then occurs, which lasts until the poison is eliminated from the organism.

As the first stage of poisoning by carbamate of ammonium is exactly identical with the first stage of intoxication by ammonium carbonate, it is well to assume that the carbamate of ammonium in its absorption is transformed into ammonium carbonate and as such is removed from the organism.

If the quantity of the first is so large that it cannot be transformed into ammonium carbonate or the time is insufficient then the effect of the carbamate of ammonium occurs, which is very quickly manifested and the epileptic seizure occurs.

If on the one hand it is admitted that carbamate of ammonium requires to be transformed into ammonium carbonate for its elimination from the organism, so it must be assumed on the other that the carbamate of ammonium is directly transformed into urea with loss of a molecule of H_2O during the convulsive seizure. And in fact in small doses the toxic effect of the poison completely ceases simultaneously with the termination of the seizure: the sleep has the character of complete repose and is probably to be regarded as the reaction from the excitement occurring during the convulsion. The animal quickly recovers after the sleep.

Then when the ammonium carbonate is gradually eliminated, the carbamate of ammonium disappears suddenly in the way stated, by which the rapid reinstatement of the normal condition in the animals is explained.

But on the other hand the purest possible ammonium carbonate also produces the same convulsive attacks, if it is introduced in sufficient quantity at one time. This may be explained by the fact that the ammonium, which has accumulated to a certain quantity and has not had sufficient time for its elimination, is transformed into carbamate of ammonium and is eliminated in this way if not in the other way by transformation into urea. The kidneys, the lungs and the skin must probably be regarded as the normal way of eliminating ammonium carbonate, which has already been intimated by the investigators of uremia.

The experiments with other ammonium salts show that each of these produce the same condition after subcutaneous injection into animals; only the doses to be administered of the different salts varies greatly.

By reason of the facts stated the effectual agent of ammonium carbamate could be wholly ascribed at once to the ammonia, and the carbamic acid disregarded.

Still further researches show the incorrectness of such a supposition.

It is especially proven, that to secure the form of intoxication described, the form of ammonium introduced into the organism is not unessential. So, e.g., aldehyd-ammonium does not produce this condition in subcutaneous injection of 1.0 to 1 kg. The rabbit dies in 6—8 hours after the injection, but the above described form of intoxication and convulsions are absent. Hence the question now arises as to the form of ammonium that will be operative in the blood.

In the study of the reactions of ammonium salts the following has been observed: 1. All acid ammonium salts and all compounds, which contain the group NH_3 or NH_4 (ammonium group) react with Nessler's reagent. 2. Of the series of acid ammonium salts *only two* (the carbonate and carbamate of ammonium) cause a black precipitate with mercurous nitrate; all other salts cause white precipitates with this reagent.

These reactions show that any ammonium salt in aqueous solution, when acted upon by a solution of carbonate of sodium, is transformed into carbonate or carbamate of ammonium. The solution of ammonium salts causes a white precipitate with mercurous nitrate; carbonate of sodium—a yellow precipitate with the same reagent. But if the solution of carbonate of sodium is added to the ammonium salt solution and acted on by mercurous nitrate, a black precipitate occurs.

This, as well as the preceding experiment, proves that ammonia, independent of the form in which it is introduced subcutaneously or into the blood, is transformed in the organism into carbonate or carbamate of ammonium by the

action of carbonate of sodium contained in the blood. But by reason of Drechsel's investigations above cited the free ammonia itself is scarcely able to produce an effect, as a carbamate salt (ammonia?) must be created with the carbonic acid present in the organism.

Hence the general law may be advanced, to which Prof. Nencki and Pawlow had arrived,—that the effect of carbamate of ammonium is to be ascribed in common to the ammonia and the carbamic acid. (The authors always say in the last of their papers: "Of ammonia, resp. carbamic acid"). Prof. Nencki is of the opinion that the ammonia in the organism is combined with carbamic acid and on this founds the principle of his last method of determining the ammonia, i.e., the carbamic acid, in the tissues and organs of the animal organism.

I now passed to the decision of the question if the toxic effect of carbamate of ammonium is to be charged to the carbamic acid.

I experimented with the sodium, potassium and calcium salts of the carbamic acid compounds. They were always freshly prepared according to Drechsel's directions (1).

The results attained differed now from those of Nencki and Pawlow. As is known the latter investigators have observed the same type of intoxication in injection of carbamate of sodium, as has been described, and ascribe a toxic effect to this compound, although in their paper they intimate that they charge this effect to the liberated ammonia. (see p. 192, Section II.)

My investigations prove that carbamate of sodium, as well as of potassium, are perfectly harmless; even if they are injected to the amount of 1.0 to 1 kg. of the body weight. Still the non-agreement of the results may be explained by the fact, that these salts in their preparation by Drechsel's method are washed out with alcohol and ammonia and hence, as they always are associated with free ammonia, are readily decomposed apparently, when carbamate of ammonia is formed.

Then the above mentioned salts, in so far as they contain carbamate of ammonium, actually possess a toxic effect.

Still in the freshly prepared condition they are washed with alcohol until the latter contains no more ammonia, and until the salts, which only possess an amido-group, no longer react with Nessler's reagent, so they are perfectly harmless to animals on subcutaneous injection. Only it is to be remarked, that these salts must be very freshly prepared, for as has been stated, the carbamate salts very readily decompose with liberation of ammonia especially in the presence of H_2O.

By Nessler's reagent the ammonia in the ammonium group (NH_4) and the free ammonia (NH_3) may be discovered; an amido-group cannot be discovered by it, and hence the pure preparations of carbamate alkalies will not react with Nessler's reagent. Still after keeping them some time, especially in a moist state, these salts will react with Nessler's reagent, which indicates their decomposition.

The effect of calcium carbamate proves to be entirely different. It is very poisonous and presents the type of intoxication fully described above, in which the second stage of intoxication,—the convulsions,—are especially marked, whereas the first stage,—that of depression,—is milder and of shorter duration. From the above mentioned standpoint such a condition is perfectly clear. The carbamate of calcium is transformed into carbamate of ammonium according to the following equation after being introduced into the organism:

$$CO\begin{cases} H_2N \\ O \end{cases}_2 Ca + H_2O = CaCo_3 + CO\begin{cases} H_2N \\ OH.\ NH_3 \end{cases}$$

Consequently the second stage of intoxication, which is due to the carbamate of ammonium, is especially marked, as this salt arises in the organism and cannot be so quickly transformed into the carbonate salt by it, as happens when the carbamate of ammonium is brought into the organism in a perfect state.

Finally the effect of the carbamate of ethyl-ether—urethan—was also tested. This compound possesses, as known, a hypnotic effect. In rabbits it produced a condition similar

(1) *Journ. f. prakt. Chemie* Bd. 16.

in a measure to the first stage of intoxication, which is chiefly manifested in ataxia and calm sleep; the second stage of intoxication, as well as the convulsions, do not occur from urethan. Hence it may be concluded that it is *not the carbamic acid, but the ammonia*, which causes the intoxication. But the ammonia in all probability manifests its effect in the form of carbamate of ammonium.

This hypothesis may be strengthened by the following facts.

As we have already stated, the dose of the different ammonium salts necessary to induce an intoxication of equal intensity, varies. According to the experiments ammonium chloride has proven to be the salt with the greatest effect, which is almost the same as that of carbamate of ammonium. Whereas the bromide of ammonium in like dose is almost entirely harmless and only produces a like effect on administration of 2—3 times larger amount. This proves that *the ammonium salts are the more poisonous as lower their molecular weight.*

Now proceeding from this fact it will be perfectly clear that the ammonium salts acting as carbamate for the production of a reaction with carbonate of sodium, in which the same quantity of carbamate of ammonium should always arise, must be employed in greater quantity as greater is its molecular weight; the quantity of Na_2CO_3, as this is the case in the blood, must of course remain unchanged.

1. $2NH_4Cl + Na_2CO_3 = 2NaCl + H_2O + CONH_2OH.NH_3$
2. $2NH_4Br + Na_2CO_3 = 2NaBr + H_2O + CONH_2OH.NH_3$.

The molecular weight of NH_4Cl is 53,5, that of NH_4Br is 98; hence the quantity of ammonium bromide essential for the reaction according to the equation given, must be double that of ammonium chloride.

From the preceding detailed statement it is then to be concluded that the toxic effect interesting us must not be ascribed to carbamic acid, but to the ammonia, which however acts in the organism in the form of carbamate of ammonium.

I fully agree with the opinion asserted in the last works of Profs. Nencki and Pawlow, according to which the ammonia in the blood must exist in the form of carbamate of ammonium; I only differ from them in that, according to my views, the NH_3 in the blood and tissues of the organism may be of two forms: that of carbonate and carbamate of ammonium. To the toxic effect of the first belongs the stage of depression and somnolence; to that of the latter—the convulsive seizure and the epilepsy. In the accumulation of carbonate of ammonium in the blood it produces symptoms of depression, somnolence and ataxia, and is then transformed into carbamate of NH_3, by which the convulsive seizures and epilepsy are produced.

Both forms of NH_3 present the same symptom complex as occurs in uremia. Still if under abnormal conditions carbamate of ammonium immediately arises in the organism, the direct manifestations of epilepsy are produced—one, or a series of seizures, during which it is transformed into urea. Very probably the process in eclampsia is the same, where carbamate of ammonium arises primarily, while in uremia it is formed secondarily from ammonium carbonate.

But on the other hand all the carbonic acid contained in the blood is scarcely united with the NH_3 and it can probably be contained in the blood in form of sodium and potassium salts. Hence the quantity of carbamate of NH_3 contained in the blood cannot always be concluded from the quantity of carbamic acid and NH_3 separately determined.

Thus this part of my investigations fully confirmed the previously advanced theory, that the nature of epilepsy consists in a periodical formation of carbamate of ammonium in the organism, which produces the seizures and is decomposed into urea and H_2O during them.

In what way this formative process occurs is very hard to prove. If Nencki's scheme is accepted, according to which the urea arises from the carbamate of ammonium by liberation of a molecule of H_2O, the process in epileptics may be indicated in the sense, that a part of the carbamate

of ammonium is not properly transformed into urea, but after its accumulation to a certain degree produces the seizure and during it is decomposed into urea and H_2O, when the urea is excreted as uric acid after the seizure.

Whereas if Drechsel's scheme is accepted, according to which the urea arises from the sodium salt of carbamic acid, which is decomposed into urea and sodium carbonate, then the abnormality in the mode of reaction in the epileptic would be that, in place of the normal sodium salt, a toxic ammonium salt arises periodically. The organism reacts to such an anomaly by a seizure, which likewise restores the disordered equilibrium in the reactions of the living organism like a safety-valve.

VI.

If we consider the periodic origin of carbamate of ammonium as the cause of epileptic seizures, then the favorable therapeutic effect of several anti-epileptic remedies, wholly employed empirically, are fully explained theoretically.

The bromides first of all have a decided therapeutic effect on epilepsy, while on the other hand it is by no means doubtful that they are wholly unable to cure epilepsy. Further it is certainly proven that in every case the effect of the bromide gradually becomes weaker in time, so that the dose has to be increased, and finally it very often loses its ability to interrupt the seizures.

All this is fully explainable from the standpoint above cited. The bromide of potash and bromide of soda mutually decompose the carbamate of ammonium, and form ammonium bromide and carbamate of potash or soda.

$$CO.NH_2OH.NH_3 + BrNa = NH_4Br + CO.NH_2ONa.$$

And in fact the above cited experiments prove that the potassium and sodium salts of carbamic acid, as well as the ammonium bromide *in a dose corresponding to the carbamate of ammonium* (see above), are completely harmless.

The carbamate of sodium arising by the action of bromide of sodium is decomposed according to the following formula (Drechsel):

$$2COH_2NONa = CO(NH_2)_2 + Na_2CO_3$$

But in regard to the ammonium bromide arising in this reaction, it is excreted from the organism, as it is relatively harmless, ere it can produce an intoxication common to the ammonium salts.

In this reaction the same process takes place indirectly as occurs directly during the seizure, and on which the importance of the self-protection of the organism by the seizure is based, i. e., the transformation of carbamate of NH_3 into urea. That this reaction is not merely theoretical, but actually occurs, is proven by the following fact: the carbamate of NH_3 causes with mercurous nitrate a black, whereas the bromide of sodium, a white precipitate. But if a sufficient quantity of a bromide of soda solution is added to a solution of carbamate of NH_3 and acted on by mercurous nitrate, a black precipitate is no longer obtained, but a bright yellow one, which proves that the ammonia is already transformed into another form, which does not react as formerly with the mercurous nitrate. And in fact: when Nessler's reagent acts on a mixture of carbamate of sodium and bromide of ammonium, a marked reaction of NH_3 occurs, hence ammonia exists in the combination, only it is transformed from the carbamate into bromide of ammonium.

On the other hand it may be fully explained why the epileptic cannot be entirely cured by the bromide of sodium, and the effect of which is limited to a certain extent:

As already mentioned, the ammonium bromide in and of itself possesses no toxic effect, but is manifested in the organism as toxic in the form of carbamate, resp. carbonate of NH_3. Hence the ammonium bromide, which arises in the epileptic's organism by the action of sodium bromide, is excreted (or is removed from it) until its quantity has not exceeded a certain limit, after which the ammonium bromide reacts with the carbonate of sodium contained in the blood and again produces carbamate of NH_3 and sodium bromide:

$$2BrNH_4 + Na_2CO_3 = CO.NH_2OH.NH_3 + H_2O + 2NaBr.$$

As the above given chemical reaction, occurring freely in the chemical retort, has a certain limit in the organism and the presence of carbonate of sodium in the blood proves to be a factor which hinders the favorable effect of sodium bromide in epilepsy.

Thus it is to be perceived of what importance for the epileptic is alkalinity of the blood in bromide therapy and in consideration of this fact the maximum therapeutic effect of the bromides may perhaps be attained. But this is certain that epilepsy can be entirely cured by the bromides, as CO_3Na is always contained in the blood, and finally the limit must be reached, when the above given reaction will have the opposite effect.

The favorable effect of ammonium bromide often observed in epilepsy cannot be regarded as a circumstance contradicting the facts set forth, as this salt is apparently absorbed in the form of sodium bromide.

The favorable effect of biborate of sodium in epilepsy is probably to be traced to an analogous process.

Then from this standpoint the bromide in and of itself does not seem to be the effectual agent, but rather the alkali, which in combination with the bromide most readily enters into the above described reaction. Hence it is important to introduce into the organism an alkali, which can replace the NH_3 in the carbamic acid compound and form the ammonia salt decomposing the most readily under the influence of the $NaCO_3$ of the blood. The bromide alkalies answer this purpose exactly, which more readily react, as they form none of the elementary components of the organism and so appear as foreign bodies, as it were, which react with the least fixed, momentary combination present in the organism.

Inversely sodium chloride normally present in the organism can possess no therapeutic effect for the reason that the atomic weight of chlorine (35.5) is less than half the atomic weight of bromine (80). As ammonium chloride would be formed when sodium chloride acts on carbamate of NH_3, so in consequence of the $NaCO_3$ in the blood the ammonium chloride would immediately be again trans-

formed into carbamate of NH_3, as for the formation of the same amount of carbamate of NH_3 about a half less ammonium chloride is required than of ammonium bromide.

These considerations in no way invalidate the other effect of the bromide, namely its sedative action on the brain.

From this standpoint still another manifestation can be fully explained, which I have already verified in my former paper, but which I could not explain at that time, namely: that medium doses of lithium carbonate have a favorable effect on epilepsy, while large doses produce marked symptoms of intoxication and intensify the seizures.

As the carbonate of lithium reacts with the carbamate of NH_3, it produces carbamate of lithium and carbonate of ammonium.

$$2CO.NH_2OHNH_3 + Li_2CO_3 = 2CONH_2OLi + (NH_4)_2CO_3.$$

So long as the latter is produced in small quantity, it is excreted by the kidneys, lungs and skin without any injury to the organism. But if the reaction is more energetic, the organism is no longer able to eliminate the forming ammonium carbonate and it is no longer combined with the carbamate of NH_3 thus arising, so that the seizures become more severe and frequent.

If we actually compare the symptom complex observed in epileptics on the employment of lithium carbonate, as I have above described it, we will notice that the symptoms mentioned, somnolence, depression and ataxia, are very similar to the first stage of intoxication by NH_3 and must be charged to the ammonium carbonate; in increasing the dose the seizures become much more severe and the effect of the carbamate of NH_3 is produced.

The carbamate of lithium produced, decomposes into urea and lithium carbonate, in which the whole amount of the latter entering into reaction is liberated:

1. $2CO.NH_2OHNH_3 + Li_2CO_3 = 2CO.NH_2OLi + (NH_4)_2CO_3.$
2. $2CO.NH_2OLi = CO(NH_2)_2 + Li_2CO_3.$

Thus theoretically the same dose of lithium carbonate could gradually transform very significant amounts of carbamate of NH_3 into urea, and theoretically this reaction

would be better than that with bromide, as it is not disturbed by the presence of sodium carbonate. Still practically this does not occur, probably for the reasons that, first, the lithium is quickly eliminated from the organism and second, because the therapeutic dose of lithium carbonate is very hard to control.

With regard to the therapy of epilepsy I believe by reason of the facts cited, that the careful analysis and study of the chemical reactions in the organism of the epileptic will show us the way to solve a part of this problem and the transformation of the toxic agent in epilepsy into one that is harmless, which will in part be effected by the reactions given in this section.

Still it must be stated that the complete cure of epilepsy can scarcely be attained in this way. The constant neutralization of the poison being formed cannot prevent its renewed formation, and, as I believe, the problem of the therapy of epilepsy will be solved as soon as the cause and place of origin of these abnormal reactions of metabolism in the epileptic's organism are proven.

All the facts given in the preceding section fully agree with the theoretical claim, that the periodical origin of carbamate of NH_3 is the cause of epileptic seizures. For the complete confirmation of this claim the presence of the substance named must be proven to be in the epileptic's blood, which was taken at different times before and after the seizure.

I have devoted a series of investigations to this question.

I must previously remark, that I have not undertaken the determination of the carbamic acid in the urine for the following reasons. According to the opinions of Nencki and Drechsel cited, the carbamic acid is usually eliminated from the organism in the form of urea, even should a part of it be eliminated in form of a salt of carbamic acid, still no conception can thus be made of the amount present in the organism. No carbamic acid may be present in the urine

and in spite of that an intoxication with its ammonium salt may occur, and also inversely carbamic acid may be present in the urine, e. g. in the form of the sodium salt and have no connection with the existing intoxication. Hence it is more correct to seek the poison where it is found and acts as such, i.e., in the blood and perhaps in the brain.

I determined the carbamic acid in the blood of epileptics according to Drechsel's method (1). The blood was taken to the amount of 40—60 cc. by means of a cupping glass and treated with double its volume of alcohol. After half an hour the alcohol was filtered off and to the filtrate 1—3 of a saturated solution of chloride of calcium added. After an hour the flocculent precipitate was filtered off and the clear filtrate subjected to a strong alkaline reaction by a twenty per cent. solution of KOH; the abundant precipitate collected on the filter paper was washed with alcohol and dried thoroughly under the exsiccator. Then the dry precipitate was reduced to a fine powder and agitated with distilled water for twenty to thirty minutes, the mixture filtered and the clear filtrate heated in a retort filled with hydrogen,—constantly being introduced. The NH_3 being liberated (at the expense of the carbamate of calcium being decomposed) was collected in an acid salt solution and determined by means of Nessler's reagent. When carbamic acid is present a precipitate from calcium carbonate occurred in the heated retort, while in the vessel connected with it containing HCl transformation of NH_3 occurred.

The analyses performed in the chemical laboratory of Prof. J. M. Ponomareff at the Charcow technological institute showed that *carbamic acid* is present *in very large amount in the blood of epileptics*, in which the condition of the epileptic patients and the distinctness of reaction attained are evidently connected. The more severe are the epileptic symptoms (the seizures, the somnolence and the excitement), but especially in status epilepticus, the more evident will be the reaction of carbamic acid, and inversely, in the intervals between the seizures the reaction will

(1) *Journ. f. prakt.* Chemie. New Series BD. 12.

always be very weak, still I obtain it, and more often only traces are present.

The reaction of carbamic acid could always be gotten in healthy persons; only in this case almost always in a very small amount or only traces of it, and never anything like that gotten from the blood of epileptic patients.

Therefore the presence of carbamic acid in the blood of epileptics is evident.

Still the question is not so simple. For, first carbamic acid was found by Drechsel as a normal constituent of the blood of dogs, and therefore its presence could not serve as proof of its working force, and second, carbamic acid combined in the blood with potassium and sodium and in such conditions could in no way be poisonous to the organism, as only the ammonium salt of this acid causes epileptic seizures.

Hence after demonstrating the presence of carbamic acid in the blood, I must also prove the presence of ammonia. I made the first series of these determinations in the fall of 1895, as the method of Nencki and Zaleski described below had not been published; I chose for the determination of the NH_3 the method of Salkowski (1).

The blood was subjected to the action of Salkowski's mixture (NaCl + acetic acid) and the filtrate tested with Nessler's reagent, when in different kinds of blood the same results were not always attained. Several kinds of normal blood gave no reaction of ammonia; often the reaction only showed slight traces of it. But doubtless it is always possible to get a very marked qualitative reaction of ammonia in the blood of epileptics during status epilepticus, as well as in the blood of paretics, taken during the epileptiform seizures. But in the blood of the same patients taken during the intervals no reaction or a very slight one only could be discovered.

In general the experiments for the quantitative determination of NH_3 in the blood of epileptics according to

(1) Hoppe-Seyler, Handbuch der physiolog.-chem. Analyse.

Salkowski's method gave quite contradictory results, and so I will not speak of them here. In some cases I got no ammonia, in others I determined it only qualitatively and only in severe cases of the epileptic state was it present in relatively large amount. But I must remark, that occasionally in *these blood tests, in which the presence of carbamic acid was undoubtedly proven, no ammonia was to be discovered by Salkowski's method.* This is provisionally the only conclusion I regarded as possible to draw from my analyses according to Salkowski's method.

In November, 1895. a paper by Nencki, Pawlow and Zaleski under the title of: "Ueber die Anwesenheit des NH_3 im Blute und in den Organen und über die Entstehung des Harnstoffes bei den Säugethieren" (The Presence of NH_3 in the Blood and Organs, and the Origin of Urea in Mammals) appeared in the *Archiv für biologische Wissenschaften*, and in the following issue of the same journal these authors published their new method of determining NH_3 in the fluids and organs of the animal organism (1).

Through the kindness of Prof. Nencki and Dr. Zaleski I was able to become personally acquainted with their apparatus, as well as their method of analysis, for which I owe these gentlemen my most sincere thanks.

I immediately employed this method in the investigations of the blood of epileptics.

Irrespective of the great technical difficulties of the analysis with regard to its duration and the essential attention, the method of Prof. Nencki and Dr. Zaleski gave more exact and definite results than the former. The important fact alone (which practically does not prove to be especially advantageous), that for the analysis not 10—20 cc., but 50—100 cc. of blood are taken, in which no loss occurs in the filtering, and the whole NH_3 is immediately driven out and totally distilled into titrated H_2SO_4—this circumstance alone considerably facilitated the determination of such quantities,as, e.g., 2—3 mg in 100 cc of blood.

For analysis I take 100 cc of blood of epileptics, which

(1) *Arch. f. biolog. Wissensch*, Bd. IV. No. 3 (Russian).

has been drawn by means of a cupping glass and defibrinated, and proceed strictly in accordance with the directions of the authors cited. Of course a daily withdrawal of 100 cc of blood is quite unpleasant for the patients; but to get an idea of the quantity of NH_3 at different times before and after the seizures, 3 to 4 analyses must be made of every patient; further each analysis demands great care, owing to the expensiveness of the materials, so that they take about 8 hours, and finally the fact is to be mentioned, that after obtaining the blood at the hospital I must immediately go to the Technological Institute, about 6 kilometers away, to make the analysis. All these facts suffice to explain the difficulty and the slow progress of the work. It required a whole day to make each analysis, and the first analyses were often not to be taken account of.

I later intended to make a whole series of such analyses without hurrying; I will here communicate only a few of the results obtained to show, 1, that valuable results are to be expected from further investigations of the blood of epileptics according to the new method of Prof. Nencki and Dr. Zaleski, and 2, in what degree the facts obtained will confirm all the previous claims.

1. Blood of the patient Zch. (who had been examined many times in my early studies). The blood is taken in the interval: seizures did not occur for five days before and for four days after the analysis. 100 cc were employed, 1—10 the amount of a normal H_2SO_4 solution, gave 10 cc 1—40 of a normal solution of Na OH equalled 30 cc; on the whole then 4.3 mg of NH_3 were found in 100 cc of blood.

2. 100 cc of blood was taken from the patient, who had two seizures on the preceeding day and on the day of the analysis one seizure four hours after the blood was taken. After that on the day of the analysis no seizures occurred for eight days; 7.086 mg of NH_3 were found to 100 cc of blood.

3. The patient T., having very frequent daily seizures, had six seizures on the day before the analysis, on the day of the analysis five and on the next day three seizures.

100 cc of blood were taken, in which 5.61 mg of NH_3 were found.

4. From the same patient T., blood was again taken after three weeks. On the day of the analysis the patient was in a condition of epileptic coma, unconscious; on the day of the analysis and on the preceeding, no seizures occurred; formerly five and four seizures had occurred daily, on the following days three, seven, four seizures, etc.

100 cc of blood were taken.
1—10 normal H_2SO_4 = 10 cc.
1—40 normal NaHO solution = 22 cc.
In 100 cc of blood 8.5 mg of NH_3 were found.

From the analysis cited it is perceived that NH_3 is present in the blood of epileptics, and in very large quantities, which is more, as severer the epileptic manifestations are in the patients. Parallel determinations of carbamic acid were made in the same patients and a considerable amount of it found.

Consequently this last part of my investigations has completely confirmed all the preceding, and only a detailed elaboration and verification of the present investigation remains.

Still a circumstance exists, by which the investigation is greatly complicated, and which I am still unable to solve fully.

The problem of my last series of investigations consisted in determining the carbamate of ammonium in the blood of epileptics. On the one hand carbamic acid has been found, on the other NH_3, and the question would be well decided, if, as Prof. Nencki presumes, the NH_3 was present in the blood exclusively in the form of carbamate. By reason of my researches, I still think that the carbamic acid present in the blood is scarcely all combined with NH_3, but may be combined with K and Na also. On the other hand NH_3 can be contained in the blood in two forms—in that of the carbonate and of the carbamate.

Hence it cannot always be concluded from the several quantities of carbamic acid and NH_3 obtained as to the amount of carbamate of ammonia present in the blood.

The carbamic acid is determined according to Drechsel's method. The method of Nencki and Zaleski discloses the NH_3, whether combined with CO_2 or with carbamic acid. According to the method of Nencki and Zaleski the NH_3 of the amido-group can scarcely be removed, as it is still to be proven that all the carbamic acid of the blood will be transformed into the lime salt by the action of lime-water; but only this latter, during heating in a vacuum, can liberate the amido-group of carbamic acid. Consequently it cannot be claimed that by this method the carbamic acid not combined with NH_3 can be determined.

Hence it seems to me that in the further investigations one must not be alone limited to the determination of the NH_3, but must also determine the carbamic acid simultaneously according to Drechsel, in that the displaced NH_3 is collected in titrated H_2SO_4 and from this amount the quantity of carbamic acid is determined.

In conclusion I may cite an analysis by Prof. Nencki, who found a considerable quantity of NH_3, 20.9 mg to 100 grm of the brain substance of a dog, which had died during an epileptic convulsion in consequence of a venous fistula(1).

In concluding my present paper I deem it necessary to remark that all the cited observations and conclusions alone refer to the so-called idiopathic epilepsy. Epileptic seizures represent a general disease symptom, like fever, and can, like the latter, be due to various causes. So, e. g., the pathogenesis of traumatic epilepsy may be completely different and the seizures be produced by the local irritation of a cicatrix or a focal disease. But on the other hand it is very probable, that in many cases the "traumatic" epilepsy differs in no way from the idiopathic, and that the trauma is only a predisposing factor, on the basis of which the genuine epilepsy is developed, exactly in the same way as a tuberculous joint follows a trauma.

The group of symptomatic epilepsies must be wholly excluded, which are due to focal diseases.

My further researches will consist of the careful verification and elaboration of the facts acquired.

The investigations were made in part in my laboratory at the Charcow Government Hospital, but their chemical part at the chemical laboratory of Prof. J. M. Ponomareff at the Charcow Technological Institute. I consider it my duty to express my most sincere thanks to Prof. Ponomareff for the kind permission to use his excellent laboratory, as well as also for the repeated hints and advice he gave me during my special chemical studies of the substances of urine. But this paper appears chiefly as a result of theoretical and practical studies in the portion of organic chemistry mentioned.

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(1) *Arch. f. biolog. Wissensch*, Bd. IV No. 2, p. 208. (Russian.)

INCIPIENT MELANCHOLIA.*

Its Diagnosis, Prognosis and Treatment.

JOHN PUNTON, M.D., Kansas City, Mo.

Professor Nervous and Mental Diseases, University Medical College, Member American Neurological Association, Medico-Psychological Association, Etc., Etc.

GENTLEMEN:—I desire at the outset to acknowledge my appreciation of the courteous invitation extended me by your committee to address this august body of scientific gentlemen, and assure you that I deem it a great honor to be thus privileged.

In contemplating a theme that would be worthy your consideration, I concluded to invite your attention to some remarks relative to the Diagnosis, Prognosis and Treatment of Incipient Melancholia.

In the vast domain of practical scientific medicine, nothing can possibly transcend in importance or exceed in interest the recognition in its incipient or curable stage of a malady fraught with such serious consequences as that of insanity.

Viewed from whatever standpoint, no other symptom or disease at all compares with this demon of the intellect in the terror it inspires, in the deep distress to relatives and friends, in the utter helplessness to the individual, as well as the serious havoc it creates in all business relations and social ties.

Its diagnosis, prognosis and treatment should therefore claim our constant and most earnest attention. During my early professional career it was my good fortune to be

*Read by title before the American Medico-Psychological Association at St. Louis, Mo., May, 1898.

actively associated with the medical staff of the Central Illinois State Hospital for Insane located at Jacksonville, one of the largest and best equipped institutions of its kind in this country.

If there was one lesson more than any other that was indelibly impressed upon my mind by that experience, and since then even more forcibly emphasized by a much larger and fuller knowledge, it was the fact that the curability of insanity largely depends upon its early recognition. In other words, the longer its duration the less the chance of recovery. This great pathological law which also obtains in most diseases, is even of greater significance when applied to insanity.

Hence on admission of a patient to our hospitals, no question has greater prognostic signification than the one which pertains to the duration of the malady. Indeed the recovery of any given case largely hinges upon its recent occurrence.

Much therefore depends upon its early diagnosis as well as the enforcement of appropriate measures of treatment. In the voluminous annals of medico-psychological literature no truths are more often repeated and their importance urged with greater fervency upon the mind of the medical practitioner than are these referred to. Scarcely an annual or biennial report for the last twenty years has been issued from our numerous hospitals for the insane without their mention, and I venture the opinion that many gentlemen before me have dictated them for publication so often that in view of their barren results, are now tempted to give up in despair.

Nor is this surprising when experience proves that the true import of the early recognition of insanity, as well as the laws and principles which govern its successful management, is not always fully appreciated by the physician.

Consequently many a recent case and presumably curable one fails to recover either through sheer neglect or ignorance on the part of the physician to properly interpret the significance of certain symptoms, or failure to early apply the appropriate methods of its successful treatment.

It will therefore be the purpose of this paper to call attention to some features relative to the diagnosis, prognosis and treatment of incipient or simple melancholia, in the hope they may receive official endorsement, and thus by their practical use tend to lessen the ever increasing army of incurables.

I am aware that Clouston makes a somewhat vague distinction between incipient and simple melancholia, but at best it is so unsatisfactory from a clinical standpoint, that I prefer to regard the terms as synonymous; hence, in the remarks which follow, their use should be thus interpreted.

If insanity is an expression of some derangement of function or structure of the brain, or both these elements combined, by virtue of which the normal mental attributes of an individual are so affected as to lessen his power of controlling his thought, speech or conduct, then it would seem that clinically speaking the symptoms are the most essential elements for the physician to properly interpret, for these are simply nothing more nor less than the outward expression of some functional or structural changes of the various bodily organs.

Now in the study of Incipient Insanity we find that the chief symptoms naturally divide themselves into two great classes, viz: 1st—Those which present every gradation of mental depression or depressed state of feeling. 2nd—Those which present all degrees of mental exaltation or hilarious excitement.

On analysis you will observe that these also represent the two most common varieties of insanity, viz: melancholia and mania. It is to the former of these however that I desire more especially to call your attention.

A well established scientific fact demonstrates that the very large majority of all forms of insanity are preceded by some degree of mental depression, consequently this constitutes one of the chief clinical factors in most cases of incipient insanity.

"Observation," says Griesinger, "shows that the immense majority of mental diseases commence with a state

of profound emotional perversion of a depressing and sorrowful character."

Guislain however was the first alienist to elucidate this highly interesting fact and of its general correctness there can be no doubt.

Recognizing therefore that mental depression constitutes the chief clinical feature of most forms of inclpient insanity, it may prove useful to consider some of its general characteristics. Mercier declares "That the depression of spirits in melancholia has for its physical basis a low ebb of tension of the nervous energy, and that this physical condition has its physical effect in producing an undue lack of activity in all bodily organs."

This reduced nervous tension seriously affects the visceral organs and nutritive functions of the nervous system which again is expressed by a marked inaction or want of vigor of their normal processes. Consequently a feeling of bodily illness is engendered which attracts the attention of the patient to himself and later constitutes the basis for various kinds ot delusions. This morbid introspection or self-consciousness is a very marked feature in many cases of incipient melancholia.

The symptoms of incipient or simple melancholia, and those upon which our diagnosis depends, are therefore both physical and mental. The former are undoubtedly largely the cause of the latter, and when combined produce a syndrome of clinical phenomena which would seem to be unmistakable.

All authors agree that the mode of invasion of melancholia is rarely sudden, but is usually preceded by a period of incubation which varies considerably in duration and extent. During its presence the bodily changes gradually interfere with the functions of the higher brain centers, and it is worthy of remark that those which are the latest evolved and consequently the latest organized, are the first to show symptoms of restrained or diminished energy. This reduction in power of the highest inhibitory centers allows the lower or egoistic feelings to rise and even dominate, and the patient under their controlling influence gradually be-

comes more and more selfish as well as indifferent to the rights of others, taking little or no interest in his family, friends or business, and thus he drifts along for a shorter or greater length of time until he ultimately becomes in every way an altered man.

The decline of the highest mental attributes and the rise of the lower egoistic or subject consciousness has been shown by Blandford to accompany all stages and varieties of insanity. But it is exceedingly well marked in incipient melancholia, and constitutes a diagnostic feature of one of its most common causes, viz., the insane diathesis.

This latter remark can be more readily understood when we remember the important role heredity plays in the production of melancholia. According to some authors this element exists in nearly 60 per cent. of all cases, and may come from either one or both parents or grandparents. Many a man therefore is prone to insanity by virtue of a faulty inheritance, and one of its dominating factors may be his egoistic, selfish tendencies, or the inherited predisposition may manifest itself by an excessive dread or fear of objects or places, thus constituting one of the different phobias.

When an individual possessing such a birthright is exposed to the common causes of insanity such as severe mental and physical strains, reverses in business, loss of property and friends, masturbation, sexual excesses, religious excitement, anxiety in any and all its forms, deficient elimination and excretion of the toxic products of the body, intemperance, peripheral irritations, injudicious education, or indeed any other cause that tends to weaken and depress the nervous system, the physical and mental symptoms of incipient insanity are readily induced.

The early physical changes which often occur pertain to the appearance and attitude of the patient. Indeed his whole physiognomy changes. His face which formerly bore evidence of animation now loses its normal aspect and presents the picture of despair. There is a marked feeling of lassitude and weariness which interferes with his every movement. The diminution of nerve energy interferes with

the processes of digestion and assimilation, and the patient soon suffers from an impaired appetite and constipation supervenes. The action of the heart also is diminished in force and frequency, and the pulse becomes weak and irregular, which results in a lack of tone in all the bodily organs.

Hence the patient becomes pale and haggard, and the body gradually wastes and loses its normal tone and contour. Loss of body weight is therefore an invariable accompaniment of incipient or simple melancholia. Most or all of these physical signs may exist in varying degrees of intensity in different cases, and produce changes in the mental and psychical constitution which have their corresponding symptoms.

The most marked mental symptom and that which overwhelms all the rest is the mental depression. It may be slight or profound, hence it presents all degrees, but it betrays its origin by invariably being more intense in the early morning. This is explainable on purely physiologic principles as the tide of nervous energy is at this time at its lowest ebb, as well as the nutritive and visceral functions. Hence it results in aggravating the depressed state of feeling. It is also more persistent and usually out of all proportion to the assigned cause which at best is very unreliable.

Another common and constant mentalsy mptom is insomnia. Like the depressed spirits, it presents all degrees but is usually very persistent and is rarely absent. This again induces a feeling of pain in the head which is technically termed Clouston psychalgia. In many cases this persistent abnormal sensation does not amount to actual pain but is described as an abnormal fullness or pressure which varies in intensity. This in turn leads to morbid introspection which is usually manifested by a lack of interest in near relatives and friends, and a positive dislike to former avocations and environments. When carried to its further degrees it constitutes actual delusions which however are not often an accompaniment of incipient forms of insanity,

although they appear much earlier in the progress of melancholia than in mania.

The presence, therefore, of delusions aids us much in the diagnosis of its duration as they rarely appear at the commencement of insanity, buf rather indicate that it has existed for some time and reached a considerable degree of intensity. As the disease progresses, other developments arise which also serve as a basis for its classification into several varieties. Beyond the simple or incipient form of melancholia, however, all are complicated with symptoms which betray its advanced nature. The diagnostic criteria of incipient or simple melancholia may therefore be reduced to the following clinical symptoms:

1st. Mental depression presenting all degrees of depressed states of feeling.

2nd. Insomnia which may be slight or profound, but usually very persistent.

3d. Headache or psychalgia which is commonly referred to the occipital region.

4th. Loss of normal body weight, presenting all degrees.

5th. Changes in attitude and physiognomy.

6th. Impaired appetite with marked constipation.

7th. Morbid introspection with selfish inclinations.

8th. Morbid fear of objects or places constituting the phobias.

When these symptoms present themselves in any individual and become persistent, whether the cause be known or not, they constitute the actual presence of that form of incipient insanity known as simple melancholia. Moreover, if these symptoms be recent in onset it constitutes one of the most curable of all forms of insanity. All-important then is its diagnosis, as well as the employment of appropriate methods of treatment in this early uncomplicated stage.

In its most advanced stages it becomes complicated with other symptoms which render the prognosis much more unfavorable. These consist in the various forms of delusions, hallucinations and illusions, as well as incoherence, stupor, excitation, epilepsy, suicidal and even homicidal impulses.

Moreover in its chronic stages it may even pass into mania, Dementia or other severe forms of Insanity.

A point worthy of emphasis is, that while melancholia in its uncomplicated stage is the most common of all forms of insanity, it nevertheless is perhaps the most curable.

Unfortunately on account of it being the sanest kind of insanity, too often its presence is mistaken for some less serious condition, and the patient being able to plead his own cause in a rational manner, is allowed the benefit of every doubt until serious complications arise which greatly hinder the chance of recovery. During this period the patient often drifts from one physician to another, and at the unwise suggestion of friends becomes the victim of the unscrupulous quack and charlatan.

On the other hand, when a correct diagnosis has been made, and the gravity of the situation fully realized by the attending physician, occasionally a serious complication occurs when the prescribed process of law is appealed to in order to properly provide for the patient.

The following case will serve to illustrate what I mean. A few months ago Mrs. F. was referred to me by Dr. S. for diagnosis. After having the patient under observation long enough to satisfy myself of her true condition, I made a diagnosis of insanity, and signed a certificate to that effect, at the same time urged her husband to place her under surveillance and other measures of treatment. After returning home he attempted to carry out my instructions, which she vigorously resented, and claimed to her friends and neighbors that it was a scheme of conspiracy on her husband's part to get rid of her, and that he had called on the family doctor to aid him in carrying out his evil purpose. Her neighbors believed her, and the husband and doctor were criticised severely; consequently their efforts for the time being were abandoned, and the patient was given the benefit of the doubt.

It was with no amount of surprise that I read in a daily newspaper a few days ago, the following telegram. It was headed, "She Proved Herself Sane."

"Last week Mrs. F. was tried for her insanity. Her

trial lasted six days, and during that time she appeared so rational that the jury declared that she was sane. Immediately after her trial she became a raving maniac. She attempted to kill herself and threatened those around her. She was tried again yesterday and declared insane."—[Kansas City Star, March 25, 1898.]

Herein lies one of the greatest evils of the present jury system, wherein competent medical testimony is made subservient to a juryman's crude knowledge of insanity.

This also leads me to remark that our laws are sadly deficient in recognizing the claims of the insane as demonstrated by the teaching of modern medical science. Just so long as we sit idly by and allow the legal ruling of a court to decide that because a man knows right from wrong he is necessarily mentally responsible for his actions, can we expect our special knowledge to be ignored, and consequently fail in our mission to impart justice, mercy and protection to those who by virtue of their insanity are unable to defend themselves. All authorities agree that simple melancholia is a very curable disease provided appropriate measures of treatment are early enforced.

Clouston claims that out of 1,000 cases admitted to the Morningside Asylum, 45 per cent recovered. This included all varieties of disease, but if only the simple cases were reckoned, the ratio of recoveries would greatly exceed this.

When the diagnosis of simple melancholia has been made and the value of early appropriate treatment fully realized, the question often arises, "what course is best to pursue in order to properly provide and insure its successful issue?" There are three recognized avenues open to the physician to select for his patient, which vary considerably in cost and relative merit.

The first pertains to the treatment of the patient at his own residence.

The second by sending him to a general hospital or State Asylum.

The third to his removal to a private home or sanitarium.

The choice of either of these is largely determined by two factors: 1st, the financial ability of the patient, and 2nd, failure on the part of physician or friends of patient

consenting to his removal from home for treatment. Experience proves that the prognosis of recovery is always much increased when *isolation* from home can be enforced. In most cases the conditions of home life in which the disease has developed are not conducive to recovery. A wise change of scene and environment is therefore an important aid to recovery.

Moreover I have often made the effort to treat such patients at their own homes and to isolate them there, but I have rarely done so without promising myself that I would not again complicate my treatment by any such embarrassment.

There is a curious sort of morbid delicacy and prejudice in the public mind concerning insanity, which seems to associate shame and disgrace with mental disease, that often hinders the early application of the important principle of isolation.

If for any reason however the patient cannot be removed from home, the next best thing is to set apart a certain portion of the residence and convert it into a temporary hospital by the adoption of hospital rules and methods.

Unfortunately persons suffering from melancholia are sometimes referred to general city or public hospitals for treatment. In my judgment such hospitals are not at all suited for the successful treatment of such patients. The daily routine of surgical operations and dressings, with all their attendant sufferings and anxieties, are not conducive to the well-being of melancholiacs. Moreover there are some very good reasons why persons suffering from melancholia should be spared the State Insane Asylum.

It has for some time been my conviction that the environment of a State Asylum in not the best for the cure of simple melancholia. My experience proves that what is needed for them is a thoroughly sane atmosphere and surroundings. This is almost impossible at an asylum. Beside, the limited number of attendants and the noise and disturbance of the less fortunate inmates is seen and heard on almost every hand, which is also detrimental to their recovery. But the chief objection to State Asylum care for

such patients is the great expense necessarily involved in their proper care and management on the one hand, and the stigma associated with their committal on the other.

Of all insane patients those suffering from simple melancholia are the most expensive to properly provide for, as they require so many special privileges in the way of environment, diet, amusement, employment, nursing and medical treatment. The unwritten law of equality which is so jealously guarded by every American citizen, prevents the toleration of special privileges at public expense. The immense number of patients compels the utmost economy of administration in the large public asylums, and the superintendent who undertakes to disregard this rule is speedily dispensed with, for the constant cry of the average politician is to cut down expense irrespective of special demands.

In addition to this we cannot ignore the prevalent but mistaken notion that in committing a patient to the asylum we are branding him with a stigma of disgrace which can rarely be effaced. In view of such facts, the great need of to-day for patients suffering from simple melancholia, it seems to me, is treatment at private homes or sanitariums, built expressly for the care and treatment of the acute insane, which should be under State supervision. These could properly be termed "Detention Hospitals," where the patient could remain under suitable medical surveillance and treatment until such time as the question as to its curability could in great measure be determined.

Such hospitals should be equipped with all the modern medical appliances necessary for their proper care, and no amount of expense should be spared to supply them the requisite diet, environment and medical skill. Nor should any but recent and presumably curable cases be eligible for admission, and the number limited. In this way many persons who now refuse State care would gladly accept it.

No doubt to some, such a proposition seems practically impossible and wholly unnecessary, but I believe there is a growing need for half-way hospitals, that separate the distance between the home of the patient and the Insane

Asylum, and where the question in doubtful cases of its curability can be fairly tested.

As it now stands many a curable patient is deprived of hospital treatment because of certain superstitious beliefs concerning insane asylums which all through the centuries has failed to be effaced.

Unfortunately these false notions concerning asylums and the insane are not confined solely to the laity but prevail to a large degree among the members of our profession. Many a physician believes that insanity is incurable from its inception, and refuses to apply the necessary and appropriate restraint for his patient. Only a short time ago, in conversation with a superintendent of one of our large State asylums concerning the curability of insanity, he said he had little faith in its curability. I asked him why, and he replied that they were all degenerates from its inception, which rendered their cure improbable. What a contrast there is in this remark and that of another superintendent who told me that out of the 600 chronic incurable patients under his care, that more than half of them were there as the result of serious blunders on the part of physicians failing to recognize the importance of early appropriate treatment. Again, others fail to receive appropriate treatment because of their family pride, while still others believe that because of its hereditary nature it cannot be recovered from. Experience proves, however, that heredity is not a bar to speedy recovery, but simply renders the patient more vulnerable to a relapse.

Time will not permit further enlargement, although much might profitably be said in regard to its medical treatment. If the basic element of melancholia is one of malnutrition, then our efforts must be directed to the correction and maintenance of a healthy and proper blood supply to the brain and other dependent trophic deficiencies.

The means by which these ends may be secured are the following:

1. By moral persuasion.
2. Use of drugs.
3. Hygienic measures.
4. Mechanical appliances.
5. Surgical operations.

The manner in which these principles are applied furnished a theme for a former paper.* But they are so well known to you that their mere allusion at this time is all sufficient.

In conclusion, I desire to add that if I have succeeded in calling your attention to a subject which would seem to demand our most earnest and serious attention, the intrusion on your patience and time, which I have made, will not have been in vain.

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*See ALIENIST AND NEUROLOGIST, 1896.

LIMITED CRIMINAL RESPONSIBILITY.

By DR. W. F. BECKER, Milwaukee, Wis.

ONE might properly hesitate to approach the subject of criminal responsibility on which the last word is so far from being said. But there is scarcely a matter of wider interest even though but superficially invaded.

Some writers* have said that the determination of responsibility does not come within the domain of the doctor, that while he is properly consulted as to the sanity or insanity of a person charged with crime, the responsibility of that person is a matter of law. It is true that the legal responsibility does properly take a large share in the destiny of the person, but the *actual* responsibility to which the *legal* must largely conform, must always be a psychological inquiry, a matter of science. Though the positive dicta of law in unsettled questions has much to defend it, unless it be granted that society has an indisputable right to inflict punishment arbitrarily, ignoring all moral responsibility and guided only by its own apparent interest without reference to abstract justice, then this view must be sustained and the evolution of law must follow the evolution of truth.

The law has always exempted from responsibility infants, idiots or lunatics, those committing unlawful acts by accident or under duress and the king. "Such persons cannot commit crime," it says. Whether or not all these positions are well taken is not the scope of our inquiry which will be limited to the one of chief importance namely, responsibility bearing on mental disorder.

The ruling of the law here has had an interesting evo-

*Sir Fitz James Stephen.s

lution following tardily the scientific unfoldment. At first the crudest ideas of responsibility prevailed. Immunity from punishment was conferred only when the person was "totally" insane as distinguished from "partial" insanity which Matthew Hale, its expounder, likened to the understanding of a child of fourteen years and which though discredited medically, served to differentiate obvious insanity from that which is not so obvious. Fifty years later Judge Tracy established the ruling that irresponsibility was granted only if the patient did not know what he was doing, "no more than a brute or a wild beast," derisively called the "wild beast" theory. Later a step in advance was made when the existence of delusions was regarded as a necessary condition of irresponsibility, *i. e.*, where delusions could not be predicated no irresponsibility was granted. Later the "right and wrong" test of responsibility supplanted this. Exemption from responsibility here existed, if the person did not know the difference between right and wrong in the *abstract*. Still later the question of responsibility became the question of knowing the difference between right and wrong in the *particular act* which was the subject of inquiry. This "right and wrong" test was embodied in the famous answers of the English judges to the questions put by the House of Lords in 1843. These answers though justly and widely stigmatized since not only by medical men but jurists* and the subject of repeated evasion† or attempted reconciliation with broader medical views‡ and in many instances replaced by more liberal rulings of a number of American jurists are still followed in a majority of the United States.

Thus it will be seen that the law has dealt decisively with this subject. At different periods it has treated each test as a fixed criterion of responsibility. It has thus assumed and sought for, some absolute principle of responsibility cut and dried. But when we step over to the other side of the question we find at once that the lines between

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*Stephens' History Criminal Law, Vol. ii, page 163.

†Charge Justice Stephens. The Western Mail, March 15, 1888.

‡Tuke's Dict. Psychological Medicine, Vol. I, p. 316-317.

responsibility and irresponsibility are not so well drawn. We find that there may be responsibility in the insane as well as irresponsibility in the sane. We see in short what receives little popular or legal recognition—the relativity of responsibility. If disordered mental action gauges responsibility as even the law recognizes, and disordered mental action is a relative thing—exhibiting degrees from sanity to obvious insanity, then responsibility too must be relative. Once committed to the relativity of mental disorder, the question of criminal responsibility in mental disorder can be shifted to that of criminal responsibility in general.

Dismissing questions of responsibility to a Higher Power we limit our inquiry to that arising from man's relation to society. Society on the one hand is an ever changing organization which to maintain itself requires certain activities and restraints from its units, man. Man on the other hand, a product of his evolutional history is constantly engaged by virtue of evolution in attempted adaptation to his social environment, continually developing new activities which favor such adaptation and restraining old ones, the heritage of primitive mental states, which interfere with such adaptation. Failure in such adaptation to its best interests, society must look upon broadly as crime, and the individual who by positive or negative conduct thus defaults, it must broadly regard as criminal. Certain consequences ensue from such failure. Natural (?) ones which visit the individual and are in the nature of remorse, humiliation and the usual train of evils which follow in the "way of the transgressor," and artificial ones which society applies (the natural ones being insufficient to protect it from injury). These latter are intended to (*a*) punish the individual, (*b*) to deter him and others and (*c*) to protect society. Public opinion takes jurisdiction over the subtler failures, the grosser ones are codified into and controlled by the law. Society thus demands of its units responsible conduct. In taking this attitude it assumes the free-will of the individual to do or refrain in its interest. Such nicety of adaptation, however, is but imperfectly attained by the individual. There is therefore in reality no such thing as

absolute responsibility, as there is no such thing as absolute health or absolute sanity. It is conditioned. On the one hand by the capacity of the individual to *exhibit* the favorable and *inhibit* the unfavorable activities and on the other hand by the *pressure* of his environment (chiefly) to effect such exhibition and inhibition. The exercise of man's best activities and restraints, while no doubt they are largely organized and automatic, seem ever to require this *pressure*. It is furnished partly by motives from within him, but chiefly by his environment with its complex incentives in the nature of fears and favors (rewards and punishments). Without this pressure he is ever prone to fall into lesser restraint and initiative—into atavistic traits. Men rise to their highest achievement under it and sink to their worst without it as races fall into barbarism when removed from civilized surroundings. So necessary is this pressure to arouse or restrain conduct favorable to society that we constantly supplement it by adventitious aids; as for example, when we use the rod to arouse the defective activities of the lazy boy or the bucket of water to restrain the automatic ones of the hysterical girl. It is scarcely possible to overestimate the power that this pressure bears on conduct. It goes to the very heart of responsibility, for the act of the criminal is often an automatic one which by supplementary pressure at the right moment would have been averted. There is thus this play between society and the individual, the *pressure* of *environment* pitted against the capacity of the individual to adapt himself, that constitutes his measure of responsibility. Responsibility is not thus a *fiat* of the will as so largely assumed. Though the pure automatists have had more polemic than practical bearing, it is incumbent that we recognize more than we have done the reaction of a particular mind to surroundings as we unhesitatingly do the body functions—that Circumstance is king. This does not preclude all choice, for as stated, while much of conduct springs from organized moral sense and will, it is more largely the reaction of the given individual to environment. Indeed it is this reaction which organizes the moral sense and that even this organization is sadly disturbed by

changes which take place in the individual (changes far short of obvious mental disorder) or his environment, the history of civilization abundantly shows.

When we turn these views, if they be true, upon the legal tests of responsibility we see how arbitrary these tests have been. We see indeed how impossible it is to frame a rule of responsibility. We see how far the widely applied "knowledge of right and wrong" test fails in justice, for to grant responsibility only where the person charged with the crime did not *know* the act was wrong at the time of committing it, takes no cognizance whatever of the power of restraint and turns the question wholly over to the reason which is subordinate in most acts which have an emotional background even in the very sane. The inference that we are capable of avoiding conduct because we *know* it to be wrong is negatived by our common experience. It involves the assumption that with the *knowledge* of right and wrong goes *ipse facto* the power of *doing* the right and *avoiding* the wrong. If most persons could *do* right in the measure that they *know* it—if the knowledge of right lay in the efferent nerves, the pedagogue could soon perfect the world. Practically, too, this "right and wrong" test miscarries. While there are ten persons who did not know that their criminal act was wrong, and by virtue of not knowing are irresponsible according to the law, there are ninety persons just as plainly insane who *do* know the criminal act to be wrong, yet who are just as irresponsible by all data except metaphysics.* "Man is responsible to do that which he *can* do, not that which he *feels* or *knows* it *right* to do."

Of equal invalidity are the "delusion" tests which are in wide use. These are to the effect that to confer irresponsibility the delusion must have a direct bearing on the crime and that the crime which springs from a delusion, must have its responsibility adjudicated as it would if the

*Says Dr. Bucknill, of large experience: "I remember but one case of a lunatic who did not know the nature and quality of the act charged. A maniacal woman who was so mad in court that she was unfit to plead." *American Journal Insanity*, vol. xl, p. 42.

Also "Wherever any manifestation whatever of mental action can be adduced, the feeling of right and wrong may be proved to exist." *Bucknill Criminal Lunacy*, p. 51.

delusion were true. For example, a man acting under the delusion that another is about to take his life, kills this person, is not punishable, as he is acting in self-defense. If, however, he kills this person, acting under the delusion that he was damaging his character or fortune, he is responsible —for that would not excuse the crime if the delusion were true. Here it is assumed that the exact delusions are always ascertainable, that they are not concealed as is often the case, that the exact relation of the diseased portion of the mind to the crime can be separated from the healthy portion, the data for which inquiries would have to come largely from the insane person himself. And it is further presumed that a man acting from an insane delusion can act reasonably in respect to it, thus implying that the reason is disordered by virtue of the delusion, yet not disordered by virtue of his ability to adjust his conduct properly in regard to it. All power of control in the *execution* of the act is again here ignored. Such assumptions are purely metaphysical,* however expedient or convenient they may be for the law. But metaphysics in insanity has more than once turned justice into a rope.

It is true there have been higher achievements in the law than these tests. In a number of the United States more liberal views have come from judge and jury, approaching the broader Continental treatment of the subject.† These have been in the nature of the repudiation of the "right and wrong" test as an exclusive one and some recognition of controlling power as an element in responsibility,‡ the admission of a debatable borderland between sanity and insanity,‖ between responsibility and irresponsibility,§ a repudiation of the delusion test of the English

*Based upon the metaphysics of Locke.

†The German code says—"An act is not punishable when the person at the time of doing it was in a state of unconsciousness or disease of mind by which a free determination of the will was excluded." The French code has it—"There can be no crime or offense if the accused was in a state of madness at the time of the act."

‡Parsons vs. State, 81 Ala. 577, Bell's Medico-Legal Studies, Vol. II, p. 16, Medico-Legal Journal. Also, State vs. Fulton 25, Iowa 67. An uncontrollable and irresistible impulse arising from insane conditions of the mind relieves responsibility. Also Blake vs State, 21 Ind. 433.

‖10 Fed. Rep. 161.

§State vs. Richards 39 Conn. 591. Also Judge Gilder Sleeve's charge in case of Mrs. L. Witthaus and Becker, Medical Jurisprudence, Vol. III, p. 240.

judges,* a disposition to recognize mental disease without *conditions* an exculpatory plea.†

There has however been very little or no recognition of the relativity of responsibility. Rules and tests usurping questions of fact and often prejudging a case have had supremacy. These have failed to cover a modified responsibility which exists in truth, however difficult to determine —a modified or limited responsibility by reason of mental conditions of the offender. The world is full of persons with arrested or decadent mental functions who are not within the pale of insanity or obvious mental disorder, and who by their very structure are unfitted to adaptation and responsibility. These include numerous "borderland" cases so-called, also lesser degrees of imbecility with defective moral sense, also individuals with strong hereditary insane traits, all of whose power of inhibition is in structural defect and who commit crimes under relatively slight causes often without special motive and in the face of swift and certain punishment.‡

Perhaps the law cannot easily compass such modified responsibility yet it must ever seek to do so in approaching justice. It has had some recognition already where juries take cognizance of extenuating circumstances, where measure of guilt has been reduced by drunkenness,‖ where guilt has been gauged in persons who at the time of their offense were roused by some great religious or political excitement, in somnambulism.§ Exceptionally cases have been accorded the broadest treatment in this respect as in that of a person who was confessedly neither idiotic or insane who was tried for burning a barn. In charging the judge took the measure of responsibility which he

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*State vs. Jones 50 N. H. 369.

†State vs. Pike 49, N. H. 399.

‡It may be said that we here arraign the criminal. Inasmuch as a large percentage of so-called criminals come from this class, if we are to preserve a distinction between the structurally defective and the criminal, we must recognize it from our standpoint to be, that one is capable of being deterred by such pressure as his environment furnishes and the other not.

‖Wharton Criminal law, vol I, p. 54.

§Fair vs. Com., 78 Ky 183, Austin Abbot. "A Brief for Trial of Criminal Cases," N. Y.1888, p. 334.

likened to that of a young child,* and another who was acquitted on the ground of being of weak intellect and having no reasonable control over his actions.† Juries and judges have gone beyond this. The case of Mrs. Lebkuchner is of much interest in his connection.‡

Here is a woman who, with strong hereditary predisposition to mental disorder (her sister an inmate of an insane hospital), with syphilis probably involving brain (numbness, some loss of power of one side, and pupillary symptoms), with pregnancy and its morbid fears, with no delusions except ill-defined ones that she should die during her coming confinement, with great mental depression, not fit to work yet working, suffering from a severe injury to her side, sleepless and harassed by poverty and want, seeing no hope for the future, but starvation for herself and her children, kills them as the best solution of her difficulty. Though she was without hallucinations and illusions she was in too poor a physical condition to appreciate clearly the nature of her acts or to resist the impulse which impelled her.

Though this case very ill-fitted the conventional tests of insanity or responsibility that were applied she was properly acquitted of guilt.

The following case is here briefly quoted to indicate the kind of case in which a modified or limited responsibility should be granted.‖

A. B., age 45. At the age of puberty showed signs of sexual perversion in that he yielded to an impulse to expose his sexual organs to young girls. He was ashamed of it immediately. He had graduated from a University in Germany and had good opportunities from his social position and friends for advancement in life. Again, guilty of a like offense, he escaped to England where his ability as a teacher soon secured him a good position. Here the anxiety for his livelihood being relieved, the same impulse seized him and despite his knowledge of the necessary results to follow and the disappointment and shock to friends who had aided him, he was again guilty of a similar offense. Coming to this country he was again successful in securing an occupation and gained the respect of all, his mental disorder not being suspected; after all strain and anxiety of establishing himself had been

*State vs. Richards, 39 Conn 591.
†S W North, Insanity and Crime, Journal Mental Science, vol. xxxii. p. 16.
‡Witthaus and Becker, Medical Jurisprudence, Vol. III, p 240.
‖Witthaus and Becker, Medical Jurisprudence, vol, iii, p, 271.

removed the same impulse presented itself and he again exposed himself in a public place to little girls. Ordinary sexual intercourse gave him no relief nor was the same pleasure experienced. He was perfectly cognizant of his crime against order, bewailed his condition, threatened suicide and said that though he were to have been killed the next moment he could not have controlled the act.

Here was a man refined and educated, in full reasoning power with knowledge of the nature and consequences of an act. Every motive for not doing it existed. Desire alone and that of a morbid nature will explain it. Surely the law should recognize some limited responsibility in such a case.

The law may properly deem it inexpedient to look with laxity upon responsibility for fear of encouraging a pretext of irresponsibility or insanity in those charged with crime. But one cannot escape the conviction that the law has gone to the other extreme in this regard. The pages of jurisprudence teem with instances of the conviction and punishment of insane, irresponsible, mentally sick men, and they make very solemn reading. While one responsible man escapes on the pretext of insanity, ninety-nine insane and irresponsible ones are punished. This is the reverse of an old and revered maxim. Surely expediency should not weigh so heavily against justice.*

Nor are the evils of the insanity plea insurmountable.

Persons acquitted of guilt on the ground of insanity should be subject to detention for the public safety if not also for their own good. Such detention is better accomplished in states which have institutions for the criminal insane than in the hospitals. There could also be a minimum of detention exacted having some correspondence to the term of imprisonment for the particular offense. Thus society could accomplish its protection which is the wholesome end of all punitive treatment and the deprivation of liberty would incidentally be a punishment which could have whatever deterrent effect there may be in it. Expe-

*During the past twenty-five years 40 per cent. of the murderers apprehended in New York State have been confined in asylums. At least 30 per cent were insane before their crime. E. H. Williams, New York Medical Journal, April 19, 1898. (When we take into account cases in prison in which insanity is not so obvious, also those insane who are convicted of lesser crimes than murder, for in felonies of a lower order unsoundness of mind is seldom raised, we can understand why chains, irons and the camisole belong to the armamentaria of prisons. See Report International Prison Congress, 1895.

rience in New York shows that it does not pay there to resort to the insanity plea. The average length of confinement in prison (including life sentences), is only a trifle over two years. On the other hand the average length of confinement of insane criminals is over four years, twice that of prison life. The aim of the lawyer being to get the minimum sentence for his client in case of conviction he is chary of advancing the insanity plea.*

Lastly, the law should unhesitatingly confer irresponsibility where the individual is obviously insane whether the crime was the offspring of his mental disease or not. Though it may be true that the fact of being insane may not have predicated irresponsibility in all his conduct, what problem is more perplexing than the determination whether the disease did or did not affect the act. And can there be any question that where the disease exists the offender should be given the benefit of the doubt as to his responsibility, especially when society may thereby still be protected?

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*Ibid.

THE SYPHILITIC ETIOLOGY OF LOCOMOTOR ATAXIA.

L. HARRISON METTLER, A. M., M. D., Chicago, Ill.

Professor of Physiology of the Nervous System, College of Physicians and Surgeons of Chicago (Medical Department of University of Illinois).

IN a paper presented last year to the American Medical Association and published in the journal of the association, March 26th, 1898, I offered some statistics showing the untenability of the view that all cases of locomotor ataxia are the result of syphilitic infection. Marie, of Paris, goes too far when he declares that tabes is nothing more nor less than a sequel of syphilis. It is admitted and it is easily demonstrated that spinal syphilis and locomotor ataxia are widely different affections. Even the ataxia of spinal syphilis differs from the ataxia of tabes. All the other symptoms are sufficiently unlike in the two affections to indicate clinically their pathological differences. This being so obviously the case, the advocates of the syphilitic etiology of tabes, have had to fall back upon the statement that the degenerative process of the disease is merely the result, more or less remote, of the action of the specific virus upon the delicate nerve structures. They say, the toxæmia of the syphilitic diathesis somehow affects the histological elements of the nervous apparatus, especially the sensory apparatus, so that their nutrition is impaired and they undergo degeneration.

Now it seems to me that this explanation of the post-syphilitic nature of tabes proves too much, for the advocates of this view must demonstrate that the syphilitic toxaemia is the only blood dyscrasia that can cause the degenerative process observed in tabes. Does syphilis set up any other degenerative process besides that of locomotor

ataxia, and if so, why does it not do it as often as the advocates of its etiologic importance, declare it does it in locomotor ataxia? Why does it select the sensory apparatus as it seems to do in this disease? If the syphilitic poison is *always* the cause of locomotor ataxia, wherein does it differ so much from other severe toxæmias, such as ergotism for instance, that it and not any other form of blood poisoning should produce the degeneration of locomotor ataxia? Or, on the other hand, what is it in the nervous elements that should induce them to yield always to the syphilitic and not to any other form of toxæmias? These are some of the questions that the advocates of the syphilitic etiology leave unanswered. They tell us that the degeneration of the nerve elements is produced by the specifically poisoned blood; some of them declare that this poisoned state of the blood operates by lowering the nutrition of the nervous structures; but none of them so far have informed us how the syphilitic toxaemia *alone* is capable of doing all this. To uphold syphilis as the *sole* etiologic factor of tabes, they must demonstrate that the syphilitic is the only virus that can directly light up a degeneration of the nervous elements or indirectly affect their nutrition so as to bring about their ultimate degeneration. Until they can do this positively and clearly, and in view of the fact that statistics from reliable sources show that locomotor ataxia is due to specific infection in from 5 per cent. to 95 per cent. of cases, I do not think we are yet justified in stigmatizing a tabetic patient who may be dealing honestly with us in denying infection, with the charge of having so foul a disease, whether acquired knowingly or unknowingly. The *syphilitic* origin of *all cases* of locomotor ataxia has not yet been sufficiently established to warrant us in making so dogmatic an assertion.

The newer histology of the nervous system and the newer pathology of tabes dorsalis seem to me to upset the theory, on *a priori* grounds, of the syphilitic origin of *all* cases of the disease. A knowledge of the sensory neuron, its anatomy and its physiology, is essential to the conception of the pathology of tabes. This particular form of

neuron consists of a central body with two long processes extending out from the body in opposite directions and terminating in brush-like arborizations in the skin and posterior columns of the cord respectively. The body of the neuron, situated in the posterior spinal ganglion is supposed to subserve somehow a nutritive purpose to the neuron and in view of the fact that the newer pathology makes of locomotor ataxia essentially a disease of mal-nutrition a confirmation is thus afforded of the theory of Marie, Dejerine Obersteiner, Redlich and others who long ago located the primary source of the disease in the posterior ganglia. The nutrition of the neuron being thus affected, it naturally follows that its delicate, distal extremities, the cutaneous and medullary arborizations should reveal the strain first and undergo degeneration. This explains the peripheral character of many of the symptoms of tabes such as the ataxic gait, the anaesthesia, the pains on the one hand and the central character of many other symptoms, such as the ptosis, cranial nerve disturbances, myosis, optic atrophy, etc., on the other. The crises are probably peripheral manifestations, though they may be of a central origin through implication of the medullary nuclei.

This peripheral character of the pathology of locomotor ataxia—peripheral in relation to the central neuron body—is receiving stronger recognition day by day. The degeneration travels along the neuraxons and is centripetal in relation to the neuron bodies. Its simultaneous appearance in the peripheral arborizations of the sensory neurons gives to the disease its hitherto unexplained peculiarity of manifesting simultaneously cutaneous and cordal pathological changes. The old idea of an upward degeneration in the cord must be abandoned and the more or less simultaneous degeneration of mal-nutrition in the neuron terminals of skin and cord be accepted.

Though this nutritional disturbance is probably dependent upon some disturbance of function in the neuron body, located in the posterior spinal ganglion, it is primarily due to one of three factors, viz: (a) toxaemia (including syphilis), (b) exhaustion (overwork) and (c) traumatism (includ-

ing such factors as cold, damp, etc.). To these causes must be added also heredity, for the neuron body must have inherited a normal structure ere it could have performed its functions normally. Freidreich's disease is thus accounted for as well as its close relationship to ordinary locomotor ataxia.

The whole question presents itself somewhat thus. Given a normal nervous system in a healthy individual without hereditary taint. In such an individual a progressive degenerative process may be started up by direct injury (traumatism) including such factors as cold, damp, etc., by overwork of the nervous elements (exhaustion) and by certain blood states (toxaemia) including syphilitic and other forms of infection such as alcoholism, ergotism, etc. Of the toxaemic, and in fact of all the three sets of causes enumerated, the syphilitic is without doubt the most common; because probably under these circumstanccs the highest degree of blood poisoning, acting for a long period of time is brought in relation with the sensory, the most delicate and highly organized part of the nervous appaatus. In other words, the muscular sense being the last acquisition in the evolution of the sensory functions of the race and therefore the first that would be liable to succumb to any unusual strain, the power of resistance is probably less in the sensory neurons than in the other neurons, to the prolonged action of the syphilitic virus. On the other hand there is probably a higher degree of virulence in the syphilitic virus toward the nervous elements than there is in most of the other varieties of toxaemias. That some syphilitics do not acquire tabes is explained on the ground that either the virus in their case is not sufficiently active or if it is sufficiently active the inherited vitality of the nervous elements is so vigorous as to be able to resist the action of the syphilitic poison.

The above explanation, which I have only briefly indicated, is I believe, the true one of the so-called selective action of the syphilitic and other poisons in locomotor ataxia. Upon no other ground can I understand how in this disease the nerve terminals within the muscle-spindles

are always found to be degenerated while the intervening nerve trunk lying between the muscle-spindle and its corresponding posterior ganglion, remains normal. These muscle-spindles which Sherrington, Batten, Ruffini and others have proved to be of a sensorial character, to be closely related to the posterior ganglia and to be probably subservient in some way to the very elaborate and highly specialized function of the muscular sense and sense of position, and which are always degenerated in locomotor ataxia but not in any other disease with the same regularity, are in all likelihood the most delicate and most readily injured part of the entire nervous system. Upon these delicate structures, the syphilitic and occasionally other toxaemias act harmfully; they yield and undergo degeneration, and so seem as though they were *selected* by the poison. The selective action is not in the poison but in the lessened power of resistance on the part of the sensory elements.

But do toxaemic conditions, other than syphilis start the degenerative processes of locomotor ataxia? They certainly may do so, if the above explanation of the pathology of the disease be correct and if the toxaemia be sufficiently virulent and the sensory neurons sufficiently debilitated by heredity or other cause. Not only *may* they do so, but in my opinion they most certainly *do* sometimes do so. And here, it seems to me, is where we are to classify those cases which in the absence of a syphilitic history, can only be attributed to such manifest general cachexiae as malaria, rheumatism, alcoholism, ergotism, arsenicism, etc., especially when these are conjoined with such *exciting* causes as cold, damp, muscular exertion, etc.

Let me summarize. Those who believe that syphilis is *always* the cause of locomotor ataxia depend largely upon hospital statistics, but hospital cases would for obvious reasons give a large percentage ofsyphilitic cases.

Those who believe that syphilis is *always* the cause of locomotor ataxia must, in order to maintain their thesis, present a large number of consecutive cases in which syphilis has been positively established. The simple fact that

the percentages of syphilitic locomotor ataxia vary amongst authorities from 5 to 95 show, that there is no uniform method of tabulation among them or that their observations must have been made upon very different classes of patients.

Those who believe that syphilis is *always* the cause of locomotor ataxia must prove the reason for and nature of the so-called selective action of the syphilitic virus on the sensory apparatus. They must show why it does not affect in a similar way the other parts of the nervous system. If in their explanation they fall back upon the extreme virulence of the syphilitic toxin and the readier susceptibility of the sensory system, they must show why any other extremely virulent toxæmia may not similarly affect a vitiated nervous system and set up in the sensory apparatus the same sort of degeneration that syphilis does in tabes. In a word they must deny, and at the same time show cause for their denial, that any form of toxæmia other than the syphilitic can accomplish what they so dogmatically declare the syphilitic toxæmia accomplishes in *all* cases of locomotor ataxia. When a man with locomotor ataxia for instance denies having had syphilis, but gives a clear history of chronic alcoholism with exposure to damp and cold, they must not only prove absolutely the presence of the syphilitic taint but they must or should demonstrate upon some histological or chemical basis in connection with the so-called selective action of the virus, why they prefer to believe in the denied syphilitic etiology rather than in the confessed alcoholic etiology. More than this, they must prove the presence of syphilis and its selective action in a reasonably large number of consecutive cases.

Until they do this, I do not think they are justified in attributing *all* cases of locomotor ataxia to specific infection. Nay, more, in view of the newer pathology of locomotor ataxia as I have briefly outlined it above, I think we may safely say that *not all* cases of locomotor ataxia are due to syphilis. We can wait for the proof of the contrary, the burden of which rests heavily upon the advocates of the syphilitic origin of tabes dorsalis.

DEGENERACY STIGMATA AS BASIS OF MORBID SUSPICION.*

A STUDY OF BYRON AND SIR WALTER SCOTT.

By JAS. G. KIERNAN, M. D., Chicago.

Fellow of the Chicago Academy of Medicine; Foreign Associate Member French Medico-Psychologic Association.

AMONG the factors of greatest importance in adjustment to an environment stands tact. As Emerson sings:

"What boots it thy genius
What profit it thy parts
If one thing thou lackest—
The art of all arts."

Club foot may appear to be destructive of tact through the irritability it engenders. That it may coexist with considerable powers of tact is demonstrated by the case of Talleyrand, the most consummate diplomat of the last two centuries. Despite Talleyrand's double club foot he was permitted to enter the church and finally became a bishop, whence Carlyle's reference to him as "his irreverent reverence of Autun." Talleyrand managed to keep prominent during the volcanic era of the French revolution. He succeeded even during the despotic time of the directory, the consulate, the empire and the restoration. Indeed it is probable that Napoleon owed no small part of his downfall to Talleyrand. Napoleon, after 1806, grew singularly and obtrusively dictatorial, even to the men who were his chief aids in creating the empire. It must be admitted that Talleyrand had an exceedingly low opinion of mankind and this

*Continued from ALIENIST AND NEUROLOGIST. July, 1898.

opinion aided him in profiting by their weaknesses. His training as an ecclesiastic gave him the suavity and *savoir faire* necessary to constitute an excellent diplomat. On the whole it cannot in justice be denied that Talleyrand was rather above than below the standard of morality of his period. His case therefore demonstrates that even under disadvantageous circumstances something more than the mere existance of club foot is required for the creation of suspicional mental states even in degenerates.

The depth of the degeneracy in the maternal side of Byron's family has already been described. One of its stigmata appears in the premature obesity of Miss Gordon. This same stigma is also apparent in Byron, himself, who was, as Jeferson remarks, "a fat boy." Byron, however, did not become unwieldily corpulent until he stopped growing. This tendency to stoutness worked together with club foot for Byron's discomfort. Premature obesity, as Talbot* has shown, is a nutritive expression of degeneracy, especially noticeable at the second detention at puberty and sometimes at the climacteric. According to Féré† lipomatosis (first noticed by Cruveilhier) is an expression of nutritive stress at the periods of evolution. Youthful obesity occurs usually in the descendants of degenerates. It is attended by great liability to disease and a great tendency to systemic weakness when under morbid influence. These children are particularly liable to rheumatism, gout, etc., and great hæmorrhage from slight causes. Youthful obesity is sometimes associated with precocious maturity and resultant early senescence. More often it coexists with extended infantilism, as in the case of Dickens' "fat boy."

Talbot, examining 267 corpulent school children and adults, found that nearly all had marked stigmata of degeneracy. Ninety-two per cent. had deformed ears to a marked degree. Sixty-six per cent. had arrested development, as compared with their age, while twelve per cent. presented excessive development. Thirty-four were too young to determine the form and size of the jaw. In thirty-three and

*Degeneracy, Chapter xv.
†La Famille Neuropathique.

a half per cent. of the thirty-four the molars, incisors, cuspids and bicuspids were present. Ninety-six per cent. of these had small teeth. Eighty-seven per cent. (of the 233) had arrested development of the upper jaw. Twenty-two per cent. arrest of lower jaw. Sixty-four per cent. had V-shaped or saddle shaped arches or their modification and protruding teeth. Seventeen per cent. had hypertrophy of the alveolar process. Eighty-three per cent. had small teeth. Twenty-seven per cent. had extra tubercles upon the molars. Eighty-two per cent. had stenosis of the nasal cavity more or less marked. Thirty-six per cent. had deflection of the nasal septum to the left and twenty-nine per cent. to the right. Twenty-one per cent. wore glasses for eye defect. In fifty-eight per cent. there was enlargement of the thyroid gland and in seven per cent. arrest of the development of it.

In 296 cases of puberty lipomatosis (180 males and 116 females) coming under my own observation, there were ten cryptorchids, six hypospadiacs and three cases of pseudo hermaphroditism. Three females had infantile bifid uteri. Four had enlarged clitorides; in one of these the urethra perforated the clitoris as in the female shrew. Of forty girls who had reached the age of eighteen only three had menstruated normally. The others were amenorrhœic or dysmenorrhœic, or had neurotic storms during the period. There were 160 hebephreniacs among the number; of these 120 masturbated excessively. Ten had been nymphomaniac or satyriasic, the sexual appetite having become completely extinct at eighteen. Fifty of the non-hebephreniacs never showed any signs of sexual appetite. Three of the hebephreniacs were sexual inverts, while eighty practiced various perversities. Of the non-hebephreniacs ten were cyclothymiacs, thirty had had acute forms of insanity, ten were epileptic and fifteen hysterics. Thirteen had had chorea. Ninety-seven had difficulty in learning to speak and thirty always stuttered.

The mental relations of obesity, aside from its significance as a stigma of degeneracy, are much more extended than is usually supposed. Some years ago Theophile Gautier

remarked* that Victor Hugo, who, in his quality of the sovereign prince of French romantic poetry, should be (if the ordinary opinion as to poets were correct) angular with light or dark hair and pink complexion. The world and an overcoat could hardly contain the glory of Victor Hugo's belly. He burst his button band every day and as for buttons in front they were snapped off continually. Victor Hugo's embonpoint was most richly deserved for his plate was a *mixtum compositum* of veal cutlets, lima beans and oil, roast beef and tomato sauce, omelettes, milk and vinegar, mustard and cheese, which he swallowed rapidly and in immense amounts while drinking coffee. Rossini had not been able to see his feet over his abdomen for six years ere his death. He was a hippopotamus in trousers. Jules Janin would break down any eighteenth century sofa on which he might happen to sit. The Africanism of Alexander Dumas' passions did not prevent the author of "The Three Guardsmen" from being very plump. He ate three beefsteaks where any other fat man ate one. Saint Beuve saw his abdomen bulge out under his goatee. The most fertile of all French romancers, Balzac, looked more like a hogshead than a man. Three ordinary persons stretching hands could not reach around his waist. Dr. Eugene Sue, author of the "Mysteries of Paris," was greatly grieved when he could no longer see over his stomach. Theophile Gautier also merited a place among obese literary gods; Renan, Maupassant, Flaubert and Sarcey were also to be there classed. Most of these victims of obesity (which as a rule came early) had neurotic taint. In Balzac, according to Nisbet,† there was a converging heredity of nerve disorder. His maternal grandfather died of apoplexy and his mother was a woman of great vivacity of mind, untiring activity and extraordinary firmness. In many respects she displayed the egotism of the born neuropath. On the father's side there was a pronounced strain of insanity. The father was a lawyer at Tours. Although perfectly well in body, he took it into his head one day to lie in bed and this he did continuously for

*Journal de Médicine de Paris, 1893.
†Insanity of Genius, page 135.

twenty years thereafter, receiving his friends meanwhile and even taking part in public affairs. To everybody's surprise he got up one morning at half past four, dressed and went about his business as if nothing had happened. He had an extraordinary memory. Balzac exhibited between the thirteenth and fifteenth year a tendency to obesity. He had, while at school, an epileptoid seizure which so alarmed his teachers that they urged his parents to take him home. Balzac, although an omnivorous reader, cut a poor figure at school. His epileptoid attack never returned.

Positive insanity is to be found in the family of Victor Hugo. His brother, who died at thirty-seven in an insane hospital, was a quick, precocious child. He had poetical tastes and achieved some distinction at school. He broke down at puberty and passed into hebephreniac dementia. General Hugo, the poet's father, was an irritable, obstinate, peculiar man, who fell into disgrace with his military superiors, separated from his wife and passed his declining years in profuse scribbling. Biography, fiction and drama were poured forth in showers. Victor Hugo's mother was an energetic, sensitive woman of literary tastes, who broke down early into a neuropathic invalid and died suddenly.

Rossini had imbeciles among his maternal relatives. He suffered from irregularly periodical attacks of melancholia.

Flaubert had a nervous strain which evinced itself in epilepsy during puberty stress. Previous to his paroxysms he was accustomed to see a flame, first in one eye then in the other, and then everything appeared to him under a yellow hue. A year or two before the onset of the epilepsy Flaubert's intelligence and intellectual power were observed to develop enormously. Afterwards Flaubert's memory became fitful. He lapsed into a dreamy, indolent state and at times was so petulent and irritable as to be upset by a trifle. He would run about the room uttering cries because his pen knife was out of its ordinary place. His mother was a neuropathic invalid and a sister died insane. While his nephew de Maupassant died insane, it was from paretic dementia which took on the rapid type, not the protracted one usual in hereditary cases.

Gautier also died of paretic dementia.

The ancestry of Scott does not show quite the nervous taint that might be expected from his skull deformity. His paternal grandfather was an extremely active, quick, keen, hot-tempered man. He married a woman whose brother was an imbecile. Scott's father died at the age of 70 in a state of post paralytic dementia. He was, however, a well balanced man of the narrow type which Scott has depicted in Mr. Fairford of "The Red Gauntlet." Scott's mother was the daughter of an eminent physician. She also died during an attack of aphasic hemiplegia at an advanced age. Her brother died during a gouty attack with symptoms of aphasia. Her sister died suddenly from an unknown cause. It must be admitted that none of the neuropathic defects here described can be regarded *per se* as evidence of degeneracy. The offspring of this couple showed such evidence. Scott's father and mother had twelve children of whom six died in infancy. Of the remaining six, four, fifty years after Scott's birth, had left no descendants. Scott's eldest brother was an irritable, tyrannical boy, who, in bad humor, kicked everybody without mercy. He composed verses which met with applause among his fellow officers. Scott's sister was a neuropathic hysteric and died young. Of the other two brothers, one emigrated to Canada and displayed no striking characteristics. The other, Daniel, was a ne'er-do-well who was dissipated, indolent and what Scott could hardly bear, a coward. Scott at first regarded this cowardice as a moral defect, rather than a physical deficiency. This view he later abandoned and attempted to do his brother justice under the character of Conachar in "The Fair Maid of Perth." Here a being with considerable moral courage is rendered useless for the command of a Celtic clan because of cowardice arising from physical conditions.

In one respect beside the innumerable refuges Scott had in childhood from the terrors and suspicion of that epoch he differed widely from Byron. His training was healthful on both sides. The precision of his father formed an apt foil to his grandfather's hot temper and the influence of the grandmother and mother who were more inclined to

take the romantic side of things. The Scotts were emphatically borderers who had the very similar traits of the Norwegian viking, and the Celtic cattle-lifting ancestors. There is much in Scott's career as a literary man that recalls at once the caution and dash of these two types. Scott's mother, who belonged to the cultured class of Scottish women, had an equable, sweet disposition. His grandmother was a somewhat capricious, humorous, albeit affectionate body, well acquainted with the history of her own and her husband's family, which meant the history of the Scotto-English borderland.

Scott, like Hawthorne, profited by his lameness. As Yonge* remarks, not only was Scott thus led from his earliest years to cultivate a literary taste, but even, while still a child, he earned what, in some degree, may be termed a literary reputation. At nine years of age he was sent to the High School of his native city, where, as he had not been very well prepared beforehand, he was found to be a backward scholar in Greek and Latin; his mother, "a woman of good natural taste and feeling," had inspired him with a fondness for poetry, accustoming him to read Pope's Homer to her. To this his own inclination and probably his granddame's influence had combined old ballads of border warfare, and legends of striking events in Scottish annals. Many such tales he got by heart, "almost without intending it." Often on a winter's evening he would retail them to his schoolfellows enlivening his narrative with the fertile touch of a precociously ready imagination. Like the "noble youths who forsook the hunting of the deer" to listen to the strains of the "Last Minstrel" on the banks of Yarrow, his schoolfellows would sit around their dame's fireside drinking in his stories with rapt attention. "Looking up," as Yonge remarks, "with as fond and proud admiration as if he had been the cock of the school at golf or football."

It must be obvious that Scott had less of the egotism which separates man from his fellows, since unlike Byron he made many friends and from his earliest age displayed

*Life of Sir Walter Scott—Great Writer Series.

marked bonhomie. Byron made few but strong friends. Despite his republicanism he never enjoyed the strong general personal regard which Scott excited even among his adversaries. Byron's classical training was much more thorough and deep reaching than that of Scott. The artificial element in it, however, dominated Byron sufficiently to make him an admirer of Pope whose Homer was the ideal of the eighteenth and nineteenth century artificial school of poetry, albeit not even then of the scholar imbued with the spirit of the Greek poet. Byron enjoyed enough of the spirit to make him unconsciously the destroyer of Pope's dictatorship of literature. He, never realizing, however, the great influence he exerted in this direction, remained to the last an admirer of Pope. In this there must be suspected partly an influence of his early teachers and partly the perverse logic of the degenerate. How much influence May Gray exerted on Byron in a poetical direction is not determinable, but like all lowland Scottish women she possessed a fund of ballad poetry which must have been crooned forth to her favorite.

Scott came directly under the influence of such ballad poetry. Its effects on him abundantly appear in his poems which ring like the trumpet with the Border spirit. At twelve years Scott was transferred to College. There he extended his unacademical knowledge by learning Italian. He became so enamoured of that language as to maintain in an essay, to the indignation of the Greek professor, the superiority of Ariosto to Homer. He supported his heresy, to quote his own words, "by a profusion of bad reading and flimsy argument." The legal studies (for which the university afforded facilities) were those to which his father attached greatest importance. Scott's father destined him for his own profession. With this view he placed Scott in his own office to acquire the technical knowledge which would be indispensable to him, were he to become a Writer* and very useful if he should prefer the more dignified position of a barrister. Although Scott disliked the drudgery of

*Writer to the Signet; Scotch solicitor's title.

the office his affection for his father prevented him from crossing his soul like the clerk described by Pope who "penned a stanza while he should engross." He contrived to mingle with his porings over Erskin's "Institutes" the perusal of more attractive volumes of a most miscellaneous kind. These he read "in beginning, at the middle, or end of a volume." He skimmed them with what one of his brother clerks called "a hop-step-and-a-jump perusal," knew as much about them, however, as the other acquired by the more methodical plan of beginning with the preface and plodding on to the "finis." This desultory mode of reading (which has great attractions for many and as Yonge remarks is not without very considerable advantages of its own), was his habit through life. Extracts from his note-book of 1792 when he had just been called to the Bar present an amusing idea of the variety of his studies if they can be so called and of the objects which attracted his curiosity and interest. One day he is delighted by the present of an old border war horn from a friend whose gardener had been profanely degrading it into a grease-horn for his scythe. A page is occupied with the Norse original of "Vegtam's Kvitha, or the Descent of Odin and the English poetical version of Mr. Gray." Next comes a page headed "pecuniary distress of Charles I.," with the transcript of a receipt for some plate lent to the king in 1643. The verses of Canute on passing Ely. Then a translation by a gentleman from Devonshire, of the death song of Regner Lodbrog. After this appear an Italian canzonet in praise of blue eyes (which were much in favor with him at this time) and extracts from an old journal about Dame Janet Beaton, the Lady of Branksome of the "Lay of the Last Minstrel," and her husband Sir Walter Scott of Buccleuch called Wicked Wat; Extracts about witches and fairies; notes on the second sight with extracts from Aubrey and Glanville and a list of ballads to be discovered or recovered also appear. The whole completing as strange a medley as ever formed a relaxation from close studies. The last of these memoranda was undoubtedly that in which he took the keenest interest. Few young

lawyers have much practice to occupy them. Scott's business was not too great to hinder him from making frequent excursions in the indulgence of his hunt after relics of the olden times, among which ballads held a principal place. "The acquisition was the harder since in many cases no copies of them existed either in print or manuscript but they were preserved only in the tenacious memory of old peasants male and, still oftener, female." Many passages in the novels are scraps of auto-biography. The experiences and labours of which Mr. Oldbuck boasts to Lovel were no doubt records of the author's successes in similar researches and of the means by which those successes were achieved. He it may be sure would not have grudged "tobacco snuff and the complete Syren as the purchase of a bundle of ballads two hundred years old," nor less in harmony with his jovial temper, was the drinking of two dozen of strong ale, if such a compotation could have coaxed the proprietor of a similar treasure to bequeath it to him in his will.

A much more emphatic sketch of Scott's career at this period is to be found in Red Gauntlet. The two friends are admitted by Scott himself to be intermixed sketches of himself and a friend. The Mr. Fairford of the story being Scott's father rendered more narrow than the original. The paranoiac litigant of the story, Peter Peebles, was at one time a client of Scott. The story all through shows that Scott studied law more from both its broader constitutional side and from its humorous aspects than from the ordinary standpoints of practice. More than once he elsewhere sketches himself in respects to this tendency to desultory reading. In "Rob Roy" it once more appears where Osbaldistone discovers his sons' diary which seems to have been as heterogeneous a collection of fact and literature as Scott's note-book just described.

(To be Continued.)

HYSTERIA IN RELATION TO THE SEXUAL EMOTIONS.

A Retrospect* by HAVELOCK ELLIS, London.

Honorary Fellow of the Chicago Academy of Medicine, Etc.

THE nocturnal hallucinations of hysteria, as all careful students of this condition now seem to agree, are closely allied to the hysterical attack proper. Sollier, indeed, one of the ablest of the more recent investigators of hysteria, in his very elaborate study, † has argued with much force that the subjects of hysteria really live in a state of pathological sleep, of vigilambulism. He regards all the various accidents of hysteria as having a common basis in disturbances of sensibility, in the widest sense of the word sensibility, as the very foundation of personality. Whatever the form of hysteria, we are thus only concerned with a more or less profound state of vigilambulism, a state in which the subject seems, often even to himself, to be more or less always asleep. Sollier agrees with Féré that the disorder of sensibility may be regarded as due to an exhaustion of the sensory centres of the brain, whether as the result of constitutional cerebral weakness, of the shock of a violent emotion, or of some toxic influence on the cerebral cells.

We may, therefore, fitly turn from the auto-erotic phenomena of sleep which in women generally, and especially in hysterical women, seem to possess so much importance and significance, to the question which has been so divergently answered at different periods and by different inves-

* 1. The present article is a continuation of the author's study of "Auto-Erotism," and will, with it, form part of Vol. II of *Studies in the Psychology of Sex*.

†2. *Genèse et Nature de l'Hystèrie*, 1898, and in a preliminary paper read before the International Medical Congress at Rome in 1894.

tigators concerning the causation of hysteria and especially concerning its alleged connection with conscious or unconscious sexual emotion.

It was the belief of the ancient Greeks that hysteria came from the womb, hence its name. We first find that statement in Plato's *Timaeus:* "In men the organ of generation becoming rebellious and masterful, like an animal disobedient to reason, and maddened with the sting of lust, seeks to gain absolute sway; and the same is the case with the so-called womb or uterus of women; the animal within them is desirous of procreating children, and when remaining unfruitful long beyond its proper time, gets discontented and angry, and wandering in every direction through the body, closes up the passages of the breath, and, by obstructing respiration,* drives them to extremity, causing all varieties of disease."

Plato, it is true, cannot be said to reveal anywhere a very scientific attitude towards nature. Yet he was here probably only giving expression to the current medical doctrine of his day. We find precisely the same doctrine in Hippocrates, the greatest and the most observant of Greek physicians; he defined hysteria as suffocation of the womb, though he does not always clearly distinguish hysteria from epilepsy. † If we turn to the best Roman physicians we find again that Aretaeus, "the Esquirol of Antiquity," has set forth the same view, adding to his description of the movements of the womb in hysteria: "It delights also in fragrant smells, and advances towards them; and it has an aversion to fetid smells, and flies from them; and, on the whole, the womb is like an animal within an animal." ‡ Consequently the treatment was by applying fetid smells

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*1. The hysterical phenomenon of *globus hystericus* was long afterwards attributed to obstruction of respiration by the womb.

†. As Gilles de la Tourette points out, it is not difficult to show that epilepsy, the *morbus sacer* of the ancients, owed much of its sacred character to this confusion with hysteria. Those priestesses who, struck by the *morbus sacer*, gave forth their oracles amid convulsions, were certainly not the victims of epilepsy, but of hysteria. *Traité de l'Hystérie*, Vol. I, p. 3.

‡. Aretaeus, "*On the Causes and Symptoms of Acute Diseases*," Bk. II, Ch. II.

to the nose and rubbing fragrant ointments around the sexual parts.*

The Arab physicians who carried on the traditions of Greek medicine appear to have said nothing new about hysteria, and possibly had little knowledge of it. In Christian mediaeval Europe, also, nothing new was added to the theory of hysteria; it was, indeed, less known medically than it had ever been, and, in part, it may be as a result of this ignorance, in part, as a result of general wretchedness (the hysterical phenomena of witchcraft reaching their height, Michelet points out, in the fourteenth century which was a period of special misery for the poor), it flourished more vigorously. Not alone have we the records of nervous epidemics, but illuminated manuscripts, ivories, miniatures, bas reliefs, frescoes and engravings furnish the most vivid iconographic evidence of the prevalence of hysteria in its most violent forms during the Middle Ages. Much of this evidence is brought to the service of science in the fascinating works of Dr. P. Richer, one of Charcot's pupils. (†)

In the seventeenth century Ambroise Paré was still talking, like Hippocrates, about "suffocation of the womb;" Forestus was still, like Aretaeus, applying friction to the vulva; Fernel was still reproaching Galen who had denied that the movements of the womb produced hysteria.

It was in the seventeenth century (1618) that a French physician, Charles Lepois (Carolus Piso), physician to Henry II, trusting as he said to experience and reason, overthrew at one stroke the doctrine of hysteria that had ruled unquestioned for two thousand years, and showed that the malady occurred at all ages and in both sexes, that its seat was not in the womb but in the brain, and that it must be considered a nervous disease.‡ So revolutionary a

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*1. It may be noted that this treatment furnishes another instance of the continuity of therapeutical methods, through all changes of theory, from the earliest to the latest times. Drugs of unpleasant odour, like asafoetida, have always been used in hysteria, and scientific medicine to-day still finds that asafoetida is a powerful sedative to the uterus, controlling nervous conditions during pregnancy and arresting uterine irritation when abortion is threatened, see, *e. g.*, Warman, *Der Frauenarzt*, Aug., 1895. Again, the rubbing of fragrant ointments into the sexual regions is but a form of that massage which is one of the latest methods of treating the sexual disorders of women.

†*Les Demoniaques dans l'Art*, 1887. *Les Malades at les Difformes dans l'Art*, 1889.

‡Glafira Abricosoff of Moscow in her Paris thesis, *L'Hysterie aux XVII et XVIII siecles*, 1897, presents a summary of the various views held at this time; as also Gilles de la Tourette, *Traite de l'Hysterie*, Vol. I, Ch. 1.

doctrine could not fail to meet with violent opposition, but it was confirmed by Willis, and in 1681 we owe to the genius of Sydenham a picture of hysteria which for lucidity, precision, and comprehensiveness has only been excelled in our own times.

It was not possible any longer to maintain the womb theory of Hippocrates in its crude form, but in modified forms, and especially with the object of preserving the connection which many observers continued to find between hysteria and the sexual emotions, it still found supporters in the eighteenth and even the nineteenth centuries. James, in the middle of the eighteenth century, returned to the classic view and in his *Dictionary of Medicine* maintained that the womb is the seat of hysteria. Louyer Villermay in 1816 maintained that the most frequent causes of hysteria are deprivation of the pleasures of love, griefs connected with this passion, and disorders of menstruation. Foville in 1833, Landouzy in 1846, advocated somewhat similar views. The acute Laycock, in 1840, quoted as "almost a medical proverb" the saying "*Salacitas major, major ad hysteriam proclivities*," fully endorsing it. More recently still Clouston has defined hysteria as "the loss of the inhibitory influence exercised on the reproductive and sexual instincts of women by the higher mental and moral functions" (a position evidently requiring some modification in view of the fact that hysteria is by no means confined to women), while the same authority remarked that more or less concealed sexual symptoms are the chief symptoms of "hysterical insanity."* Two gynaecologists of high position in different parts of the world, Hegar in Germany and Balls-Headley in Australia, attributed hysteria, as well as anaemia, largely to unsatisfied sexual desires, including the non-satisfaction of the "ideal feelings."† Lombroso and Ferrero, again, while admitting that sexual feelings might be

**Edinburgh Medical Journal*, June, 1893, p. 1123, and *Mental Diseases*, 1887, p. 488.

†Hegar, *Zusammenhang der Geschlechtskrankheiten mit nervosen Leiden*, Stuttgart, 1885. Hegar, however, went much further than this and was largely responsible for the surgical treatment of hysteria now generally recognized as worse than futile, Balls-Headley, "Etiology of Nervous Diseases of the Female Genital Organs," Allbutt and Playfair, *System of Gynaecology*, 1896, p. 141.

either heightened or depressed in hysteria, referred to the frequency of what they termed "a paradoxical sexual instinct" in the hysterical, by which, for instance, sexual frigidity is combined with intense sexual preoccupations; and they also pointed out the significant fact that the crimes of the hysterical nearly always revolve around the sexual sphere.* Thus even up to the time when the conception of hysteria which absolutely ignored and excluded any sexual relationship whatever, had reached its height, independent views favoring such a relationship still found expression.

Of recent years, however, such views usually aroused violent antagonism. The main current of opinion was with Briquet (1859) who, treating the matter with considerable ability and a wide induction of facts, indignantly repelled the idea that there is any connection between hysteria and any of the sexual facts of life, physical or psychic. As he himself admitted, Briquet was moved to deny any sexual causation of hysteria by the thought that such an origin would be degrading for women (*"a quelque chose de dégradant pour les femmes"*).

It was, however, the genius of Charcot, and the influence of his able pupils, which finally secured the overthrow of the sexual theory of hysteria. Charcot emphatically anathematised the visceral origin of hysteria; he declared (and this point is now beyond dispute) that it is a psychic disorder, and to leave no loop-hole of escape for those who maintained a sexual causation he asserted that there are no varieties of hysteria, that the disease is one and indivisible. Charcot recognized no causation of hysteria beyond the primordial cause of heredity; provoking agents we must indeed recognize but no primordial cause of hysteria beyond heredity, which here plays a more important part than in any other neuropathic condition. Such heredity is either direct or more occasionally by transformation, any deviation of nutrition found in the ancestors (gout, diabetes, arthritis) being a possible cause of hysteria in the descendants. "We do not know anything about the nature of hysteria," Char-

*Lombroso and Ferrero, *La Donna Delinquente*, 1893, pp. 613-14.

cot wrote in 1892, "we must make it objective in order to recognize it. The dominant idea for us in the etiology of hysteria is, in the widest sense, its hereditary predisposition. The greater number of those suffering from this affection are simply born *hystérisables*, and on them the occasional causes act directly, either through auto-suggestion or by causing derangement of general nutrition, and more particularly of the nutrition of the nervous system."*

These views are ably and decisively stated in Gilles de la Tourette's *Traité de l'Hystérie*, written under the inspiration of Charcot, which has a better claim than any other work at the present day, to be considered as the standard treatise on hysteria.

While Charcot's views were thus being affirmed and generally accepted, there were still at the same time workers in these fields who, while by no means ignoring this doctrine of hysteria, or even rejecting it, at the same time were inclined to think that it was too absolutely stated. Writing in the *Dictionary of Psychological Medicine* at the same time as Charcot, Donkin, while deprecating any exclusive emphasis on the sexual causation, pointed out the enormous part played by the emotions in the production of hysteria and the great influence of puberty in women due to the greater extent of the sexual organs and the consequently large area of central innovation involved and thus rendered liable to fall into a state of unstable equilibrium. Enforced abstinence from the gratification of any of the inherent and primitive desires, he pointed out, may be an adequate exciting cause. Such a view as this indicated that to set aside the ancient doctrine of a physical sexual cause of hysteria was by no means to exclude a psychic sexual cause. Ten years earlier, Axenfeld and Huchard had pointed out that the reaction against the sexual origin of hysteria was becoming excessive, and they referred to the evidence brought forward by veterinary surgeons showing that unsatisfied sexual desires in animals may produce nervous symptoms very similar to hysteria.† The present

*Charcot and Marie, art. "Hysteria," Tuke's *Dictionary of Psychological Medicine.*
†Axenfeld and Huchard, *Traité des Neuroses*, 1893, pp. 1892-4.

writer when, in 1894, briefly treating hysteria as an element in secondary sexual characterization, ventured to reflect the view, confirmed by his own observation, that there was a tendency to unduly minimize the sexual factor in hysteria, and further pointed out that the old error of a special connection between hysteria and the female sexual organs probably arose from the fact that in woman the organic sexual sphere is larger than in man.*

When, indeed, we analyze the foundations of the now predominant opinions of Charcot and his school regarding the sexual relationship of hysteria, it becomes clear that many fallacies and misunderstandings are involved. Briquet, Charcot's chief predecessor, acknowledged that his own view was that a sexual origin of hysteria would be "degrading to women;" that is to say, he admitted that he was influenced by a foolish and improper prejudice. For the belief that the unconscious and involuntary morbid reaction of the nervous system to any disturbance of a great primary instinct can have "*quelque chose de dégradant*," is itself an immoral belief; such disturbance of the nervous system might or might not be so caused, but in any case the "degradation" could only be the fiction of a distorted imagination. Again, confusion has been caused by the ancient error of making the physical sexual organs responsible for hysteria, first the womb, more recently the ovaries; the outcome of this belief was the extirpation of diseased sexual organs for the cure of hysteria. Charcot condemned absolutely all such operations as unscientific and dangerous, declaring that there is no such thing as hysteria of menstrual origin.† More recently Angelucci and Pierracini have carried out an international inquiry into the results of the surgical treatment of hysteria, and have been led to condemn it in the most unqualified manner. They appealed to alienists, surgeons and gynaecologists throughout Europe and

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**Man and Woman*, p 283. A distinguished gynaecologist, Matthews Duncan, had remarked some years earlier, (*Lancet*, May 18, 1889) that hysteria, though not a womb disease, "especially attaches itself to the generative system, because the genital system, more than any other, exercises emotional power over the individual, power also in morals, power in social questions."

†Gilles de la Tourette, *Archives de Tocol et de Gynec*, June, 1895.

America, and received reports of 109 cases in which the internal organs were removed for the cure of either hysteria or insanity. Only in seventeen of these cases were the results beneficial and the authors are inclined on the evidence before them to discount considerably the favorable results even in these seventeen cases, in nine of which there was real disease of the organs, while many were probably not cases of true hysteria; there was, further, reason to think that suggestion played a considerable part in the favorable results, since in six cases of simulated operation (not of course included in the series) the results were favorable.* It is, therefore, clearly demonstrated that the physical sexual organs are not the seat of hysteria. It does not, however, follow that even physical sexual desire when repressed, is not a cause of hysteria. The opinion that it was so, formed an essential part of the early doctrine of hysteria and was embodied in the ancient maxim: "*Nubat illa et morbus effugiet.*" The womb, it seemed to the ancients, was crying out for satisfaction, and when that was received the disease vanished. But when it became clear that sexual desire, though ultimately founded on the sexual apparatus, is a nervous and psychic fact, to put the sexual organs out of court was not sufficient, for the sexual emotions may exist before puberty and persist after complete removal of the sexual organs. Thus it has been the object of many writers to repel the idea that unsatisfied sexual desire can be a cause of hysteria. Briquet pointed out that hysteria is rare among nuns and frequent among prostitutes. Krafft-Ebing believes that most hysterical women are not anxious for sexual satisfaction, and declares that "hysteria caused through the non-satisfaction of the coarse sensual sexual impulse, I have never seen;"† while Pitres and others refer to the frequently painful nature of sexual hallucinations in the hysterical. But it

Revista Sperimentale di Freniatria, 1897, p 290; summarized in *Journal of Mental Science*, January, 1898.

†Krafft-Ebing, "Ueber Neurosen und Psychosen durch sexuelle Abstinenz," *Jahrbuche fur Psychiatrie*, vol. VIII, 1888. It must, however, be added that the relief of hysteria by sexual satisfaction is not rare, and that Rosenthal finds that convulsions are thus diminished. *Allgemein Weiner med. Ztg.* 1887, nrs. 46 und 47.

soon becomes obvious that the psychic sexual sphere is not confined to the gratification of conscious physical sexual desire. It is not true that hysteria is rare among nuns, some of the most tremendous epidemics of hysteria, and the most carefully studied, having occurred in convents, while the hysterical phenomena sometimes associated with revivals are well known. The prevalence of hysteria among prostitutes is evidence in favor of, rather than against, the sexual relationships of hysteria. The frequent absence of physical sexual feeling, in the same manner, may quite reasonably be taken as evidence of a disorder of the sexual emotions, while the undoubted fact that sexual intercourse usually has little beneficial effect on pronounced hysteria, and that sexual excitement during sleep is often painful in the same condition, is far from showing that injury or repression of the sexual emotions had nothing to do with the production of the hysteria. It would be as reasonable to argue that the evil effect of a heavy meal on a starving man must be taken as evidence that he was not suffering from starvation. The fact, indeed, on which Gilles de la Tourette and others have remarked, that the hysterical often desire not so much sexual intercourse as simple affection would tend to show that there is here a real analogy, and that starvation or lesion of the sexual emotions may produce, like bodily starvation, a rejection of these satisfactions which are demanded in health. Thus even a mainly *a priori* examination of the matter may lead us to see that many arguments still brought forward in favor of Charcot's position on this point fall to the ground when we realize that the sexual emotions in women (and the same is to some extent true of children and men) may constitute a highly complex psychic sphere, often hidden from observation, sometimes not conscious at all, and liable to many lesions besides that due to the non-satisfaction of sexual desire. At the same time we are not thus enabled to overthrow any of the positive results attained by Charcot and his school.

It may, however, be pointed out that Charcot's attitude towards hysteria was the outcome of his own temperament.

He was primarily a neurologist, the bent of his genius was towards the investigation of facts that could be objectively demonstrated. His first interest in hysteria, dating from as far back as 1862, was in hystero-epileptic convulsive attacks, and to the last he remained indifferent to all facts which could not be objectively demonstrated. That was the secret of the advances he was enabled to make in neurology. For purely psychological investigation he had no liking and probably no aptitude. Anyone who was privileged to observe his methods of work at the Salpêtriére will easily recall the great master's towering figure, the disdainful expression, sometimes, even, it seemed a little sour, the lofty bearing which enthusiastic admirers called Napoleonic. The questions addressed to the patient were cold, distant, sometimes impatient; Charcot clearly had little faith in the value of any results so obtained. One may well believe also, that a man whose superficial personality was so haughty and awe-inspiring to strangers, would in any case have had the greatest difficulty in penetrating the mysteries of a psychic world so obscure and elusive as that presented by the hysterical. Yet with his unflinching intellectual honesty, Charcot firmly upheld the great truth that hysteria is a purely psychic malady; and we reach the curious result that he thus placed hysteria in a world whither he himself refused to follow it.

The way was thus opened for an investigation on purely psychic lines which might throw a wholly new light on hysteria. Charcot had established the psychic character of the disorder, had even affirmed the power not only of physical traumatism, but even of psychic lesions—of moral shocks—to provoke its manifestations, but his sole contribution to the psychology of this purely psychic malady lay in the one word suggestibility; the nature and mechanism of this psychic process he had left wholly unexplained. This step was left to others, in part to Charcot's successor, Janet, and in a very large measure, I am inclined to think, to the Viennese investigators, Breuer and Freud, and by taking it they have, I venture to say, not only made the first really important contribution to our knowledge of hys-

teria since Charcot's investigations, but have opened the way to the only field in which the study of hysteria can now perhaps be fruitful.* They have not, it is important to remark, overturned the positive elements in their great forerunner's work. Freud, to whom probably the chief part in this advance belongs, began as a disciple of Charcot, and he himself remarks, in his earlier investigations of hysteria, he had no thought of finding any sexual etiology for that malady; he would have regarded any such suggestion as an insult to his patient. The results reached by these workers were the outcome of long and detailed investigation. Freud, especially, has investigated eighteen cases of hysteria in minute detail, devoting to each of them over a hundred hours of work. The patients, unlike those on which the results of the French school have been mainly founded, all belonged to the educated classes, and it was thus possible to carry out an elaborate psychic investigation which would be impossible among the uneducated. Breuer and Freud insist on the fine qualities of mind and character frequently found among the hysterical. They cannot accept suggestibility as an invariable characteristic of hysteria, only abnormal excitability; they are far from agreeing with Janet (although on many points at one with him), that psychic weakness marks hysteria; there is merely an appearance of mental weakness, they say, because the mental activity of the hysterical is split up and only a part of it is conscious. The superiority of character of the hysterical is indicated by the fact that the conflict between their ideas of right and the bent of their inclinations is often an element in the constitution of the hysterical state. Breuer and Freud are prepared to assert that the hysterical are among "the flower of humanity," and they refer to those qualities of combined imaginative genius and practical energy which characterized St. Theresa, "the patron saint of the hysterical."

To understand the position of Breuer and Freud we

*Breuer und Freud. "Ueber den psychischen Mechanismus hysterischen Phänomene," *Neurol Centralblatt*, 1893, Nos. 1 and 2: Breuer und Freud, *Studien uber Hysterie*, Vienna, 1895; Freud, "Zur Aetiologie der Hysterie," *Wiener Klin. Rundschau*, 1896, Nos 22 to 26: Freud, "L'Heredité et l'Etiologie des Névroses," *Revue Neurologique*, 1896, No. 6.

may start from the phenomenon of "nervous shock," produced by slight physical traumatism, often of a very trifling character. To Charcot belongs the honor of definitely proving that such "nervous shock," with the chain of resulting symptoms, is nothing more or less than hysteria. Breuer and Freud may be linked on to Charcot at this point. They may be said to have shown conclusively, what had already been more or less hesitatingly suggested by others, that the most typical hysteria is really a *psychic traumatism*, that is to say, that it starts in a lesion, or rather in repeated lesions, of the emotional organism. It is true that the school of Charcot admitted the influence of moral shock, especially of the emotion of fear, but that merely as an "agent provocateur," and with a curious perversity Gilles de la Tourette, certainly reflecting the attitude of Charcot, in his elaborate treatise on hysteria fails to refer to the sphere of the sexual emotions even when enumerating the "agents provocateurs."*

The influence of fear is not denied by Breuer and Freud, but they have found that careful psychic analysis frequently reveals that the shock of a commonplace "fear" is really rooted in a lesion of the sexual emotions. A typical and very simple illustration is furnished in a case, recorded by Breuer, in which a young girl of seventeen had her first hysterical attack after a cat sprang on her shoulders as she was going downstairs. Careful investigation showed, however, that this girl had been the object of somewhat ardent attentions from a young man whose advances she had resisted although her own sexual emotions had been aroused. A few days before she had been surprised by this young man on these same dark stairs and had forcibly escaped from his hands. Here was the real psychic traumatism, the operation of which merely became manifest in the cat. "But in how many cases," asks Breuer, "is a cat thus reckoned as a completely sufficient *causa efficiens?*"

*Charcot's school could not fail to recognize the erotic tone which often dominates hysterical hallucinations. Gilles de la Tourette seeks to minimize it by the remark that "it is more mental than real." He means to say that it is more psychic than physical, and he implies that the physical element in sex is alone "real"—a very large assumption indeed and destructive of Charcot's whole position.

In every case they have investigated, Breuer and Freud have found some similar secret lesion of the psychic sexual sphere. In one case an English governess, whose training has been severely upright, is in spite of herself and without any encouragement, led to experience for the father of the children under her care an affection which she refuses to acknowledge even to herself; in another a young woman finds herself falling in love with her brother-in-law; again an innocent girl discovers suddenly her uncle in the act of sexual intercourse with her playmate, and a boy on his way home from school is subjected to the coarse advances of a sexual invert. In nearly every case, as Freud eventually found reason to believe, a primary lesion of the sexual emotions dates from the period of puberty, and in nearly every case the intimately private nature of the lesion causes it to be carefully hidden from every one and even to be unacknowledged by the subject of it. In many cases Breuer and Freud have found that a slight degree of hypnosis is necessary to bring the lesion into consciousness and the accuracy of the revelations thus obtained has been tested by independent witness. The primary lesion may thus act as "a foreign body in consciousness." Something is introduced into psychic life which refuses to merge in the general flow of consciousness. It cannot be accepted simply as other facts of life are accepted; it cannot even be talked about and so submitted to the slow usure by which our experiences are worn down and gradually transformed. Breuer illustrates what happens by reference to the sneezing reflex. "When an irritation to the nasal mucous membrane for some reason fails to liberate this reflex, a feeling of excitement and tension arises. This excitement, being unable to stream out along motor channels, now inhibits other activities, and spreads itself over the brain. * * *In the highest spheres of human activity we may watch the same process.*" It is a result of this process that, as Breuer and Freud found, the mere act of confession may greatly relieve the hysterical symptoms produced by this psychic mechanism, and in some cases may wholly and permanently remove them.

It is part of the mechanism of this process, as understood by these authors, that the physical symptoms of hysteria are constituted, by a process of conversion, out of the injured emotions which then sink into the background or altogether out of consciousness. Thus the prolonged tension of nursing a near and dear relative is found by Breuer and Freud to be a very frequent factor in the production of hysteria. For instance, an originally rheumatic pain experienced by a daughter when nursing her father becomes the symbol in memory of her painful psychic excitement, and this perhaps for several reasons, but chiefly because *its presence in consciousness almost exactly coincided with that excitement.* In another way, again, nausea and vomiting may become a symbol through the profound sense of disgust with which some emotional shock was associated. Then the symbol begins to have a life of its own and draws hidden strength from the emotion with which it is correlated. Breuer and Freud have found by careful investigation that the pains and physical troubles of hysteria are far from being capricious, but may be traced in a varying manner to an origin in some incident, some pain or some action, which was associated with a moment of acute psychic agony. The process of conversion was an involuntary escape from an intolerable emotion, comparable to the physical pain sometimes sought in intense mental grief, and the patient wins some relief from the tortured emotions, though at the cost of psychic abnormality, of a more or less divided state of consciousness and of physical pain or else anaesthesia. In Charcot's third stage of the hysterical convulsion, that of "*attitudes passionnelles,*" Breuer and Freud see the hallucinatory reproduction of a recollection which is full of significance for the origin of the hysterical manifestations.

The final result reached by those workers, whose detailed and skillful analysis of the most difficult problem which meets the student of morbid psychology is of fascinating interest, is stated by each writer in the clearest manner. "The main observation of our predecessors,"

states Breuer,* "still preserved in the word 'hysteria,' is nearer to the truth than the more recent view which puts sexuality almost in the last line, with the object of protecting the patient from moral reproaches. Certainly the sexual needs of the hysterical are just as individual and as various in force as those of the healthy. But they suffer from them, and in large measure, indeed, they suffer precisely through the struggle with them, through the effort to thrust sexuality aside." "The weightiest fact," concludes Freud,† "on which we strike in a thorough pursuit of the analysis is this: From whatever side and from whatever symptoms we start, we always unfailingly reach the region of the sexual life. Here first of all an etiological condition of hysterical states is revealed. At the bottom of every case of hysteria—and reproducible by an analytic effort after even an interval of ten years—may be found one or more facts of previous sexual experience belonging to early youth. I regard this as an important result, as the discovery of a *caput Nili* of neuropathology."

It is natural to ask how this conception affects that elaborate picture of hysteria laboriously achieved by Charcot and his school. It cannot be said that it abolishes any of the positive results reached by Charcot, but it does alter their significance and value; it presents them in a new light and changes the whole perspective. With his passion for getting at tangible definite physical facts, Charcot was on very safe ground. But he was content to neglect the psychic analysis of hysteria, while yet proclaiming that hysteria is a purely psychic disorder. He had no cause of hysteria to present save only heredity. Breuer and Freud certainly admit heredity, but, the latter points out, the part it plays has been over-rated. It is too vague and general to carry us far, and when a specific and definite cause can be found the part played by heredity recedes to become merely a condition, the soil on which the "specific etiology" works.

It is the greatest merit of Breuer's and Freud's in-

**Studien uber Hysterie*, p. 217.
†*Wiener klin. Rundschau*, 1896.

vestigations, that, while furnishing a justification of the imperfectly understood idea that had floated in the mind of observers ever since the name "hysteria" was invented, they have supplied a definite psychic explanation of a psychic malady. They have succeeded in presenting clearly, at the expense of much labour, insight and sympathy,* a dynamical view of the psychic processes involved in the constitution of the hysterical state, and such a view seems to show that the physical symptoms laboriously brought to light by Charcot are largely but epiphenomena and by-products of an emotional process, often of tragic significance to the subject, which is taking place in the most sensitive recesses of the psychic organism. That the picture of the mechanism involved, as presented to us by these investigators, convincing as in many respects it certainly is, cannot be regarded as a final and complete account of the matter, may readily be admitted. It has developed in Freud's own hands, and some of the developments will require considerable confirmation before they can be accepted as generally true. It may also be admitted that the attitude of the investigators is somewhat of the nature of a reaction and like most reactions probably errs by being excessive, and that while it has at length been definitely shown that lesions of the sexual emotional sphere play a real and large part in the direct causation of hysteria, they are not the sole nor always the chief factors in the causation.† That, at all events, is my impression, but the investigations of Breuer and Freud have at least served to open a door, which Charcot had inconsistently held closed, into the deeper mysteries of hysteria, and have shown that here, if anywhere, further research will be profitable. They have further served to show that hysteria may be definitely regarded as, in very many cases at least, a manifestation of the sexual emotions and their lesions, in other words, as a transformation of auto-erotism.

*Freud remarks that while he can undertake the treatment of other nervous diseases independently of his own personal feelings towards the patient, he is unable to investigate a hysterical patient with the thoroughness necessary to obtain success unless he feels a personal interest and sympathy for the patient.

†It must be confessed, however, that the recent investigation of Gattel (*Ueber die sexuellen Ursachen der Neurasthenie und Angstneurose, 1898.*) has furnished striking evidence of the importance of the sexual factor in severe functional neurosis.

The conception of the causation of hysteria so vigorously enforced by Charcot and his school is thus now beginning to appear incomplete. But we have to recognize that that incompleteness was right and necessary. A strong reaction was needed against a wide-spread view of hysteria that was not only in a large measure scientifically false, but also, on account of its falseness, unjustly degrading to the victims of hysteria. It was necessary to show clearly that hysteria is a definite physical disorder even when the sexual organs and emotions were swept wholly out of consideration, and it was necessary to show that the lying and dissimulation so widely attributed to the hysterical were the result of an ignorant and unscientific mis-interpretation of the disease. This has been finally and triumphantly achieved by Charcot's school. It is henceforth unnecessary to demonstrate that hysteria is no more dishonorable than any other malady. Hysteria is a purely psychic disorder, occuring in persons who are above, rather than below, the average in intelligence and moral character. The way is now open for the delicate analysis of its psychology in freedom from the suspicion that any genuine results can be either idle or degrading; and if such analysis leads to the conclusion that lesion of the sexual emotions plays an important part in the etiology of hysteria we need not now fear that we are in danger of casting contempt upon the hysterical.

It seems probable that future advances in the explanation of hysteria must lie in further psychic analysis, and at the same time in the more intimate correlation of that analysis with those physical symptoms of which Charcot has given a masterly and almost final presentment, still unshaken, although wholly altered in significance.

GEORGE HERBERT STEPHENS, CRANK OR CROOK.

BIBLIO-KLEPTOMANIAC OR IMMORAL BIBLIOPHILE, WHICH?*

By C. H. HUGHES, M. D., St. Louis.

IN the early part of last July the press of the country chronicled the strange conduct of a cultured theological student and professor of moral philosophy. Following is the current record (from *New York Herald*) of this remarkable case which promises to prove when judicially and psychologically analyzed another *casus celebre* in the annals of legal medicine. Disease or depravity and how much disease and how much depravity, and how much of the depravity, if any, may have been the product of morbid degeneracy, are the questions to be solved in this case for the enlightenment of the law, that equal and exact justice may be done, that science and law may naught extenuate nor aught set down in malice. These are the cases which test our knowledge of psychology and the value of true psychiatry and its data, in the gauge of mind, normal or morbid. These are the cases wherein pseudo-alienistic experts rush in and decide with the temerity of fools, where angels of light in our ranks walk with caution. In the matter of the state or faculty of Lafayette vs. Stephens prompt and positive opinions will be forthcoming from newspaper and medical experts so-called. How many will be correct and well founded in psychic truth?

Stephens, the incendiary college professor burned the

*Professor George Herbert Stephens of Lafayette, Professor Moral Philosophy, desecrated the Chapel, burned Pardee Hall, plotted to destroy the educational institution and stole several hundred books.

magnificent Pardee Hall, at Lafayette college last December. His extraordinary confession of guilt has been published in the *Herald*. Already psychological experts are in a sea of speculation as to the probable cause leading to the professor's acts of degeneracy. Is it hereditary taint, temporary insanity or the work of an intellectual crook, as asserted by District Attorney Fox, himself a college man of experience and reading along the line of metaphysical investigation?

Detectives have found at Stephens' home, near Montrose, 227 volumes of classical literature, stolen from the Lafayette building at different times. The books have been returned by order of the district attorney.

Lafayette College, chartered in 1826, embraces seventeen imposing buildings north of Easton, on the heights, commanding an inspiring view of the valleys of the Lehigh and Delaware rivers. It is a Presbyterian institution, with an attendance of about four hundred students annually, and cost about $1,000,000.

The facts in this strange case, condensed, are: In the summer of 1893 President Warfield engaged George Herbert Stephens as assistant professor of moral philosophy. The young man was a Princeton graduate, taking special studies in the Theological seminary. After a year's trial young Stephens was appointed associate professor for two years longer, at $800 a year.

They were close friends a year or two; then bitter enemies. Stephens criticised the president's theological views—did not consider his college methods sound. Warfield refused to reappoint him. He appealed to the trustees with an ingenious fifteen-thousand-word statement. They listened, were charmed, but sustained the president—said Stephens must go.

Caspar Wistar Hodge, also of Princeton, succeeded him. Stephens retired to his home, near Montrose, in Susquehanna county, and planned revenge—to burn the college buildings one by one, that the students might be accused. They would resent it. In the uproar the president would be forced to resign as unfit to manage a great institution.

Stephens reached Phillipsburg, just across the river from

Easton, December 17, 1897. Sometime after midnight on the 18th, disguised, he entered Pardee Hall with his key, abstracted valuable books from the library for future reading, made a pyramid of furniture, surmounted by Professor Davidson's favorite motto, "Study Nature, and Not Books." The letters were of bones, and handsomely framed.

Stephens thought it a great joke on his friend Davidson, with whose philosophical views he did not agree. He shoved a lighted gaspipe into the pile, locked the door and fled to his hotel. The lack of oxygen smothered the conflagration. No fire was visible from Phillipsburg, Stephens thought his mission had failed, but was awakened at the break of day by the glare of the burning building.

He went to New York, returned in a week, visited the ruins, chuckling over the desolation. His deviltry had proved a success.

Then he began a series of desecrations unparalleled in the history of colleges. Being well known and having a key he was able to go about unrestrained. One day he entered the chapel, improvised a nocturne on the big organ, then proceeded to business.

He threw the chapel Bible and hymn books into a well near the door, not to spite the Almighty, but to create trouble between the president and the students. He disarranged the organ machinery and destroyed the historic big vine at the door. Four months later he returned, played a heavenly symphony on the organ, then poured tar into its machinery, smeared hymn books, Bibles and pews with pitch, and otherwise desecrated the chapel.

It should be explained that District Attorney Fox already had detectives on the case. Laborer Messinger guarded the chapel at night. So a few months ago, in the darkness, Stephens was heard in the building. The watchman slipped up and clubbed him with a piece of hose-pipe.

In his flight the professor left his key behind in the door. That little implement of brass proved Stephens' undoing. The janitor recognized it as his key. In a room where he had been temporarily sleeping they found his valise and a lot of telltale articles. Later, when he was

arrested, near Harrisburg, at Duncannon, where he was about to accept the principalship of the schools of that town, he collapsed.

He was taken to Easton. In the presence of trustees and a few friends, Stephens confessed. Never in the history of state institutions has there been a case having its startling features. Viewed from any standpoint it is extraordinary. While friends and foes denounced the burning of the building, good men seek excuses for the young professor.

And other facts are coming to light. It is alleged that barns have been burned under suspicious circumstances in his home district. A Mr. Hammet at Hammetsford, Pa., loaned Stephens $3,000. When pressed for payment the young man did not produce the money and disappeared. Suddenly, two barns on his father's farm mysteriously burned. Stephens collected the insurance money, deposited it in an Easton bank. Hammet got the money by attachment. Again Stephens disappeared and then Hammet's own barn went up in flames. No one could swear who did it.

The loss, however, did not prevent Hammet getting the balance due on the note. He had the Stephens homestead sold at sheriff's sale, bought it in, and, to get even with his young Presbyterian friend, deeded it to the First Universalist church of Towanda.

Another allegation said to be at the bottom of all his troubles is that Stephens originally desired to enter the Presbyterian ministry. Rich men volunteered to educate him, provided their money be returned if he failed to enter the pulpit. Stephens agreed, went through Princeton, took a supplementary course at the Theological seminary, then was engaged as professor by President Warfield of Lafayette college.

As soon as the Montrose Presbyterians learned that Stephens had abandoned the pulpit for a professorship, they raised a storm. Stephens explained that he was too young, but would preach later. This was accepted by some of his backers. But Dr. Patton of Princeton, wrote President Warfield about the matter. Stephens seemed so indifferent and evasive in his explanations that for the first time the president began to doubt his integrity.

Through the courtesy of District Attorney Fox a *Herald* representative was permitted to visit Professor Stephens in Easton prison. The institution is a credit to the town. Like Lafayette college, it too, towers from a commanding eminence, luxurious with maples and elms, completely hiding the character of the building. The adjoining court house with its classic Corinthian pillars, is an imposing pile of architecture—in appearance an ideal temple of justice.

The warden's pretty young daughter said her father was making his toilet. He begged to be excused for a few minutes, and she would be pleased to represent him in extending the courtesies of his office. A note of admission from the district attorney instantly secured official recognition, and the jailer was requested to take the visitor's card to the distinguished prisoner. While the jailer was absent the excellent housekeeping of the place was noted. The jail had every appearance of a model institution for restraining gifted law-breakers.

Stephens also asked to be excused a moment, as he, too, wished to finish his toilet. It was a fearful day, the heat of the afternoon almost suffocating, and half an hour later a hurricane burst over the city. Nearly every inmate was in prison dishabille, in striped pajamas or any old piece of gauze that would reduce temperature and increase respectability. Stephens donned his citizen's clothes and came out neat, dignified and smiling—from his prison cell into the spacious corridor of the model prison. Whether it was because of his surroundings and the tremendous experiences of the last few days, ending with his collapse and confession, or whether it was the man's natural appearance when in repose, the first impression made on the visitor was not favorable. There was a forbidding expression about the mouth, a restless, furtive glance of the eye and a suggestion of well-bred insolence—a hint of the scholastic bully.

Stephens is an imposing, athletic man, perfectly self-possessed, muscular and of great strength. He is nearly six feet tall and weighs about 190 pounds. His face is round, his hair is sandy red and his eyes something of a

fishy blue. He has been described as having a weak face and a massive, intellectual brow—a sort of degenerate Webster. His chin is certainly not that of a strong, well-balanced man, born to command, and there is a suggestion of sensuality—almost brutality—about the mouth which tells a story and explains how he came to commit acts not of a high-minded scholar, but of a degenerate.

Yet when the man begins to talk, to argue, to reason, to compare, to make fine distinctions, to draw conclusions, the play of his intellect on his features works a miracle. Sensuality disappears. The brutality of the jaw is forgotten, the high Websterian brow and inspired countenance, the flashing eye and appealing declamation amaze and charm the listener. Suspicion vanishes and doubt gives way to admiration for the persecuted genius.

Alas! Another change comes when you try to pin him down to a definite statement of his grievances, to define some of the charges against the president. In reply, there is only evasive, vaporous explanation, with an idiotic smile, a cunning, flippant sparring for time, succeeded by elaborate, indefinite speech, requiring an hour for one to hear it to the finish. "At the trial," said the professor, "the sad story will be told and the community surprised when they hear all the facts."

"But you have already confessed. What excuse can be made for burning a great college building belonging to the public, simply to be revenged on the president?"

With eyes flashing and countenance dark with indignation Stephens exclaimed: "This college president is a hypocrite. I have proof that he is a dangerous man, unfit to control a great institution. I shall present a plain statement of facts that will condemn him before the country."
"But what are these facts? Mention a single act committed by him that can justify your burning the college building."

Here a cold, foolish smile played in and out of the milky blue of the professor's eyes. It was an imbecile exhibition after the eloquence, the blazing rhetoric of his introductory remarks.

"I am satisfied," he said blandly, "to let my case rest until the day of trial. Then it will be my turn, and the public will hear my side of the story, how this man has humbugged pupils and professors. I shall unmask him—show exactly what he is, his shallowness, his trickery, his incapacity and his dishonesty toward the young men he is supposed to instruct and guide."

"How did you come to make his acquaintance?"

"He sought me at Princeton, where I was an assistant professor. He had heard of me, knew what I had been doing, became my warmest friend, until we were intimate. I liked him too until I discovered his intellectual weaknesses and the humbug of his methods. I mildly protested and by gentle argument attempted to show him the fallacy of some of his teachings. He did not relish it, and seemed envious of me. I had many friends both in college and in the city. I joined the Pomfret club, of which he was a member. When his popularity began to wane he withdrew, intimating that I was to follow.

"As it was a select club of the best men in town, I saw no reason for resigning. I remained. From that moment President Warfield became my enemy. Whether it was jealousy or because of his shallow nature I cannot say."

"Warfield is a Kentuckian, proud of his blood," continued the professor, in response to a question, with a long, funny, thin smile playing over his features. "Yes, he is a Kentuckian, the grandson of a once famous clergyman, and the nephew of Congressman Breckinridge, whose name figured in a great scandal a few years ago. As I stated, I was his favorite at the beginning. I was not only kept for a year on trial, but re-engaged for the following year, and the year succeeding that. But when Warfield found that I would not yield to his views and be wholly dominated by him, obey his whims and fancies, he no longer wanted me in the institution; my services were of no further use to the classes."

The subject now being opened, the prisoner proceeded to denounce the president with relentless bitterness. He was almost furious in his condemnation of the president's

management of the college. It was a strange exhibition, a strange picture of conflicting and contradictory emotions, the reasons for his hate and vengeance, illogical and unsatisfactory—almost trivial so far as he explained his actions toward the president. Stephens wished, however, to correct a published statement. He had never accused the president of writing letters to other colleges warning them not to engage him, but he knew that the president had worked against him in other directions and had driven him out of Lafayette college without justification.

Up on the big hill one of the officers of the college holding close relations with the president, in substance said: The statements Stephens made long ago led us to fear there was a screw loose in his head. In regard to his story about Princeton, here are the facts: There was a vacancy here. President Warfield visited Dr. Patton in Princeton in search of a competent man to take the professorship of moral philosophy. Dr. Patton invited him into his private office and closed the door for consultation. The young man who happened to be his private secretary at that time was of an inquiring turn, with an abnormal development of curiosity. He saw no way of overhearing the conversation except putting his ear to the keyhole. This he did. Among other things Dr. Patton said that there was a young professor named Caspar Wister Hodge, who was then traveling in Europe, and would not return perhaps for a year. However, he would write to him and see how soon he could take the position were it offered him.

On the following day this secretary, who by the way was Stephens, arrived at Lafayette college, bearing, he said, the compliments of Dr. Patton, his many wishes, and the suggestion that perhaps he (Stephens), a highly educated and gifted professor in ethics and other branches of moral philosophy, could temporarily fill the vacancy in the professor's chair, pending the return of Professor Hodge, from Europe. So smooth was the tale told by young Stephens, so graceful was his bearing, so picturesque and eloquent was his language, that especially when the young man assured him that he was independent and was moved only

by a desire to do the institution a service that he captivated President Warfield. He was beyond mercenary motives, for he had property and an income, removing him entirely from the poverty so common to young college professors. If the president cared to engage him on trial, for a year, for the nominal sum of $100, he would accept. They shook hands in Christian fellowship, and after a whiff of friendly theological discussion, young Stephens was installed as assistant professor.

At the end of a year he was engaged for double that period at $800 per annum. But the third year President Warfield began to hear strange whisperings, and, investigating, he discovered, he said, that Stephens was not competent for the position. Though he was something or a social favorite with the students, they did not progress in knowledge beyond a certain point.

"It will be shown in court," said a lawyer, "that Stephens is a crook by nature, who by chance has been well educated and surrounded by men of superior knowledge. There is no doubt of his natural ability, but he has not the moral character to counterbalance his depravity and viciousness. He is a moral degenerate—a sort of educated, philosophical bunco steerer, who is bad by nature, by practice and by ambition. He has an instinct of low cunning, with criminal strands running through his animal nature and his intellect.

"His profound egotism, his unblushing knavery, his deep seated passion for revenge are his undoing. I think he comes from a bad stock somewhere among his ancestors. He began life on his father's farm in Susquehanna county, near Montrose. He was a great reader in his youth and apparently superior in intellectual skill to the boys of his acquaintance. He clerked in a country store, and there acquired his remarkable knowledge of human nature and peculiar knack of bamboozling his fellows. He had a good record at school, and after finishing off at the country seminary he went to Princeton, thinking, at one time, of being a clergyman."

It is notable, that college people, lawyers and enemies

of Stephens have intimated that he is guilty of offences undefined. President Warfield is reported as calling him insincere in his religious practices and privately leading an ungodly life. Every man interrogated, from professors and lawyers to Stephens himself in jail, declared that no woman figures in the case.

Stephens said the report was untrue that he was engaged and about to be married when arrested.

These are some of the things brought against the man who made his remarkable confession of burning Pardee hall, throwing Bibles and hymn books in the well, pouring tar into the mechanism of the big organ and smearing pitch over the pulpit, Scriptures, hymn books and the pews in the chapel. This is the man who not only confessed to these things, but said he hoped to drive the arch-hypocrite at the head of Lafayette college out of the country revealed to the world in nakedness and shame. This is the man who said he intended to burn the other big college buildings on next Christmas day, hoping thus to create a panic that the president could not survive.

Yet as shocking as was the recital this professor had the sympathy of his good pastor. Every man in the room, including the trustees and the district attorney, was moved to tears, while Stephens himself wept on the neck of the clergyman. Even Detective Johnson and his assistants who worked up the case were overcome with the emotional features of the scene, and for a time the preliminary investigation following the confession was suspended.

It is astounding that, although a crime has been committed, a sacred edifice and the Holy Bible desecrated, yet teachers, students, clergymen and eminent citizens, with a large number of townspeople are hunting around for plausible explanations to account for the crime. Indeed, many practically excuse him.

Some say he has been hounded into temporary insanity. Others believe that, the building being unoccupied at the time, no harm was intended when it was fired, beyond crippling the president in his college work. Severe denunciations of President Warfield were heard among friends of

certain athletic men recently members of the college. It is said that President Warfield is an overbearing Kentuckian, over impressed with the importance of his birth, being a grandson of the Rev. Dr. Breckinridge, and a nephew of Congressman Breckinridge. It is said that he will brook no interference, listen to no suggestions and accept nothing not originated by himself. His arbitrary methods and unforgiving disposition have driven excellent young men of spirit and high breeding from the institution. They further claim that it is only a question of time when the president will be forced to resign.

On the other hand, eminent professors, who are best acquainted with him, unite in saying that President Warfield was patient and lenient with Stephens to the last degree, bearing with his eccentricities and shortcomings, his trickery and his incapacity, his dishonesty and his misrepresentations, hoping in time to reform him, because he seemed a young man of promise, and he had certain ingenuous winning ways that drew him friends.

"What is one of your serious charges besides destroying the building?" I asked.

"Literary theft," was the reply. "He stole valuable books from the library, which he admitted, but there must have been other similar acts committed.

"Still another serious charge is that he stole Dr. McCosh's ideas and thought, and palmed them off as original. He labeled McCosh's eloquent sentences as his own. He cribbed from the writing of eminent men, and was a crook all the way along during his three years of so-called professorship in Lafayette college. We will show him up in his true colors, and the president of the college will be commended for his honorable course in dealing with the degenerate young man."

Pardee Hall was partly burned December 18, 1897, by Stephens. Reconstruction was promptly begun, and the building will be entirely restored by the coming autumn.

"Vice is a monster of such frightful mien
As to be hated, needs but to be seen;
Yet seen too oft, familiar with her face,
We first endure, then pity, then embrace."

And so it is with certain degenerates in godly and moral callings, in regard to virtue. To them the good, the true and the beautiful may become so commonplace, their faces so familiar, that they fail to impress the character. Among the votaries of morality and higher intellectual culture as among the devotees of vice, when degeneracy of the higher inhibitory neurons of the gray cortex of the brain sets in, the unfortunate victims of such decadence become under favoring circumstances an easy prey to wrong impulse and passion, which, under certain environment and propulsion become positively morbid. Is Stephens such a degenerate? We think there is some degeneracy in his mental make-up. To what extent that exists and, therefore, how far he may be irresponsible can not be determined definitely on the facts above set forth alone. These facts must be supplemented by further history as to ancestral bias and present and precedent conditions of physical health and psychical tone to enable a cautious expert to settle the question of his sanity.

HEREDITY AND ATAVISM.*

By EUGENE S. TALBOT, M. D., D. D. S.

Fellow of the Chicago Academy of Medicine; Professor of Dental and Oral Surgery in the Woman's Medical College, Chicago; etc.

HEREDITY, like other biologic factors, starts with the cell. As elsewhere pointed out, reproduction is first unicellular in type and involves an expenditure of nutritive force antagonistic to the growth of the cell. As Geddes remarks,† no one can

dispute that the nutritive, vegetative, or self-regarding processes within the plant or animal are as opposed to the reproductive, multiplying, species-regarding processes, as income to expenditure or as building up to breaking down. But within the ordinary nutritive or vegetative functions of the body there is necessarily a continuous antithesis between two tissue-changing sets of processes, constructive and destructive metabolism. The contrast between these two processes is seen throughout nature, whether in the alternating phases of cell-life or in the great antithesis of growth and reproduction.

The starfish, deprived of an arm, replaces this by a fresh growth; crabs can renew the great claws which they have lost in fighting; even as high up as the lizard the loss of a leg or a tail can be made good. In a great variety of cases a kind of physiological forgiveness is shown in the reparation of even serious injuries. Now this "regeneration," as it is called, is a process of reproduction. By continuous growth the cells of a persistent stump are able to reproduce the entire number. A sponge, a hydra

*A Chapter from a forthcoming work on Degeneracy in the Contemporary Science Series.

†*Evolution of Sex.*

or a sea-anemone may be cut into pieces with the result that each fragment grows into a new organism. The same is done with many plants; and though the division is artificial the result shows how very far from unique is the process spoken of as reproduction, which is but more or less discontinuous growth. This is well shown in the evolution onward insensibly from cases of continuous budding, as in sponge or rosebush, to discontinuous budding in hydra zoophyte and tiger-lily, where the offspring vegetatively produced are sooner or later set free.

The enormous expenditure of force required for unicellular reproduction is lessened by conjugation with another cell through satisfaction of cell hunger; and this, by making two cells do the work of one, lessens the amount of nutritive force expended by each. Evolution in fertilization has the following steps:—

I. Formation of plasmodia.
II. Multiple conjugation.
III. Conjugation of the two similar cells.
IV. Union of incipiently dimorphic (different) cells.
V. Fertilization of differentiated sex elements.

As Maupas has shown, by the time conjugation of two similar cells is reached, the paranucleus in both is incipiently hermaphroditic. The impelling force leading to conjugation is, as Rolph has shown, cell hunger. Conjugation, he remarks, is a necessity for satisfaction, a gnawing hunger which drives the animal to engulf its neighbour, to isophagy (self-eating). The process of conjugation is only a special form of nutrition which occurs because of a reduction of the nutritive income or an increase of the nutritive needs. It is an "isophagy" which occurs in place of "heterophagy" (eating of others). "The less nutritive, and therefore smaller, hungrier, and more mobile organism is the male, the more nutritive and usually relatively more quiescent organism the female. Therefore too is it that the small starving male seeks out the large, well-nourished female for purpose of conjugation, to which the latter, the larger and better nourished, is on its own motive less inclined." The unicellular type of reproduction long remains

after sex differentiation has occurred and assumes the form of parthenogenesis (virgin generation). The phenomena of this demonstrate that the female element is the highest in evolution.

Spitzka* has shown that the ovum possesses an activity independently of fructification. How far this may extend in the direction of more mature development is shown by what is known as parthenogenesis. This is the development of living beings without a father. Bees, some butterflies, ants and wasps notoriously multiply their kind without sexual congress. As a rule the parthenogenetic offspring are themselves incapable of further procreating their kind. But to this there are remarkable exceptions. The aphides multiply for many generations without the intervention of a male. Weigenbergh has shown that the silk-moth can be propagated as long as the male element is permitted to act at every fourth generation. The *Artemsia salina*, a minute crustacean living in saline springs, reproduces its kind for years without a male being present, males being produced at definite intervals only (Von Siebold). Among the vertebrata parthenogenetic development has also been observed, though rarely reaching maturity. Thus, segmentation occurs in unfertilised ova of the chicken (Oellacher), of the fish (Burnett and Agassiz), and of frogs (Moquia-Tanden). Spitzka has seen a blastoderm form in unfertilised ova of the toad-fish (*Batrachus tau)*. Henson isolated the oviducts of a rabbit, thus rendering the admission of semen impossible, while the ova, discharged at heat, were compelled to remain in these oviducts. Three years later he killed the animal and found the ova had developed into twisted, club-shaped, hollow sacs. The development in the female ovary (also, though very rarely, in the male testicle and parotid gland, which show such a remarkable metastatic sympathy in mumps), of dermoid cysts (containing bones recognisable as maxillaries with teeth, hair, and skin, rudimentary bowel, gland, and brain traces), even in undoubted virgins, proves that even the human ovum is capable of parthenogenetic devel-

*St. Louis Clinical Record, 1878—81.

opment. While such development, so far as known to science, is always abortive, and while, as Washington Irving remarks, the ingenuous maiden who to-day would attribute conception to any other cause than sexual congress would find it difficult to overcome the prejudice of scientists, yet embryology, while declaring immaculate generation improbable, does not pronounce it impossible. A worker bee, a highly organised creature with a well-developed brain (*circumæsophogeal ganglion*), wonderful sense organs, intricate muscular apparatus, may be an offspring of an unimpregnated queen bee. What is a regular occurrence in one class of animals is sometimes observed as an exceptional one in another class. If the startling and apparently miraculous nature of a virgin generation of a living child be regarded as the sole objection to receiving such a fact, its defender might urge that the virgin generation of a dermoid cyst with all the traces, however aborted, of vertebrate organisation, is only a shade less startling and miraculous.

This power of parthenogenesis, however, cannot continue indefinitely without extinction. This has been shown by the careful experiments of Maupas, who had observed 215 generations of an infusorian without sexual union. He found that then the family became extinct. Powers of nutrition, division, and conjugation with unrelated forms come to a standstill. The first symptom of this senile degeneration is decrease in size, which may go on till the individuals only measure a quarter of their normal proportions. Various internal structures then follow suit "until at last formless abortions occur, incapable of living and reproducing themselves." The nuclear changes are no less momentous. The important paranucleus is fatally sterile. The larger nucleus may also become affected, "the chromatin gradually disappears altogether." Physiologically, too, the organisms become manifestly weaker, though there is excessive sexual excitation. Such senile decay of the individuals and of the isolated family inevitably ends in death. Sexual union in those infusorians, dangerous perhaps for the individual life, a loss of time so far as imme-

diate multiplication is concerned, is, in a new sense, necessary for the species. The life runs in cycles of a sexual division which are strictly limited. Conjugation with unrelated forms must occur else the whole life ebbs. Without it the protozoa, which some have called "immortal," die a natural death. Conjugation is the necessary condition of their eternal youth and immortality.

Starting from this standpoint the relative functions of the two sexes in heredity are apparent. The original function of reproduction, that of cell division, is the part of the female. The male in the lower instances simply supplies the female with nutriment. Thus in certain plants there is nothing but a subtle osmosis between the sexes. This is also the case with some of the lower infusoria. With a rise in evolution protoplasm becomes differentiated. At the outset of the subject of heredity it is evident, therefore, that the female furnishes the tvpe which is best capable of development when properly nourished by a highly developed male. To deficiencies in both particulars are due defects and variations in the offspring. As the product of fructification is longest under the nutritive control of the female, her influence is most emphatic in either redeeming defects or producing them. Heredity, according to Ribot, Spitzka, Féré, and others is divisible into direct heredity, indirect heredity, and, more dubiously, telegony. Direct heredity consists in the transmission of paternal and maternal qualities to the children. This form of heredity has two aspects: (1) The child takes after father and mother equally as regards both physical and moral characters, a case strictly speaking of very rare occurrence; (2) or the child, while taking after both parents, more especially resembles one of them. Here again distinction must be made between two cases. The first of these is when the heredity takes place in the same sex from father to son, from mother to daughter. The other, which occurs more frequently, is where heredity occurs between different sexes —from father to daughter or from mother to son. Reversional heredity or atavism consists in the reproduction in the descendants, of the moral or physical qualities of their

ancestors. It occurs frequently between grandfather and grandson and grandmother and granddaughter. Collateral or indirect heredity, which is of rarer occurrence than the foregoing, and is simply a form of atavism, subsists, as indicated by the name, between individuals and their ancestors in the indirect line—uncle, or grand-uncle and nephew, aunt and niece. Finally there is telegony, or the heredity of influence, very rare from the physiological point of view, which consists in reproduction in the children by a second marriage of some peculiarity belonging to a former spouse.

In dealing with heredity the position of Weismann and others, that acquired characters cannot be inherited, needs a short examination. In his later work Weismann has practically abandoned the essential basis of his position by admitting that maternal nutrition may play a part in determining variation. He* now asserts that the origin of a variation is independent of selection and amphimixis, and is due to the constant occurrence of slight inequalities of nutrition in the germ plasm. As acquired characters affecting the constitution of the parents are certain to affect the nutrition of the germ plasm, it is therefore obvious, according to Weismann's admission, that acquired characters or their consequences will be inherited. This is an emphatic though concealed abandonment of the central position of Weismann.

One of the stock arguments of the Weismann school is drawn from results of the Jewish rite of circumcision. While the operation is not calculated to make a profound impression on the constitution, and furthermore, as being performed on the male, less likely to affect the race, still the alleged non-inheritance of its results is much overestimated. William Wolf,† of Baltimore, Maryland, who has circumcised six hundred Jews, finds on careful examination, that 2 per cent. were born partially circumcised and 6 per cent. were born with a short prepuce. P. C. Remondino,‡ of Los Angeles, California, has personally examined

* Germ-Plasm, pp. 431, 565.

† *American Medico-Surgical Bulletin, August 15, 1893.*

‡ *Circumcision, p. 204.*

a large number of cases of absence of the prepuce which proved to be hereditary. After a confinement his attention was once called to the child by the nurse, who thought it was deformed. The nurse was astonished at the size and appearance of the glans penis. On examination the prepuce was found to be completely absent. On inquiry, the father and another son, born more than twenty years previously (comprising every male member of the family), were found to have been born with the glans fully exposed. He has seen a French family similarly affected.

Similar, but much stronger, results have been obtained by me through the courtesy of the Reverend Drs. S. Bauer, M. A. Cohen, and B. Gordon, all of Chicago. Dr. Bauer, who has been seventeen years in the practice of the religious rite of circumcision, has circumcised 3,400 boys and has found preputial absence in about 3½ per cent. of the cases. Dr. Cohen, who has been two decades in the practice, has performed 10,000 circumcisions. He has found the prepuce wanting in 500 cases; partially developed in 300 cases and slightly developed in 2,000 cases. Dr. Gordon has performed 4,400 circumcisions in twenty-five years. He has found the prepuce absent in 150 cases; partly wanting in 200, and slightly developed in 2,200 cases. These, it should be remembered, are only cases where preputial change forced itself on the observer, who was not pursuing investigations on this point.

The volume of Hebrew casuistic religious literature on the subject collected in the Medrash, evidences, as I have elsewhere shown,* the frequency of congenital preputial defect.

That acquired characters can be transmitted has been definitely shown by the experiments of George Roe Lockwood,† of New York, anent hereditary transmission of mutilations. White mice were selected, as they begin to breed when thirty days old, and breed every thirty days. He bred in-and-in for thirty-six generations, destroying the

Medicine, July, 1898.
†*Medical Record*, *vol. xlii.*

weakly, and thus obtained finer animals than the first pair. He selected a pair, caged them by themselves, and clipped the tails of the young. When they were old enough to breed, he selected a pair and clipped the tails of their progeny. In the seventh generation he obtained some tailless mice, and finally a tailless breed. The experiments have one possible element of error; white mice, like all albinoes, are a degenerate type. At the same time these experiments show that accidental mutilations favoured by circumstances are inheredited.

Eimer* reports the case of a pair of long-tailed pointers which had once produced a litter of long-tailed pups. In order to obtain short-tailed pups the owner had the tails of both shortened. The bitch from that time produced repeatedly short-tailed pups only. As the most careful attention was paid to the parents, no error can be suspected in this case, which, moreover, excites no surprise among dog-breeders.

Brown-Sequard† has shown that a peculiar alteration of the shape of the ear or a partial closing of the eyelids is inherited by the offspring of animals in which these changes were caused by dividing the sympathetic. Exophthalmia (eye protrusion) was inherited by guinea-pigs in whose parents this protrusion of the eyes had occurred after an injury to the spinal cord, and so were bruises and dry gangrene, as well as other trophic disturbances in the ear, due in the parents to an injury to the restiform body of the brain. Loss of certain phalanges or of whole toes of the hind feet which had occurred in the parents in consequence of division of the sciatic nerve was inherited. Diseased conditions of the sciatic nerve occurred in the offspring of guinea-pigs in which this nerve was divided. Forty guinea-pigs in which one or both eyes showed more or less morbid change were descended from three individuals in which one eye had become diseased in consequence of transverse section of the restiform body. Twenty guinea-pigs exhibited muscular atrophy on the upper and

Organic Evolution. P. 178.
†*Comptes rendu XCIV, p. 697, 1882.*

lower sides of the thigh, in whose parents such atrophy had been caused by section of the sciatic nerve.

The experiments of Brown-Sequard, Westphal, Dupuy* and Obersteiner, which show that artificially induced epilepsy is inherited, still further bear out the conclusions resultant on the inheritance of these mutilations. Indeed, Weismann has been forced to that *reductio ad absurdum* in science, narrowly limited definitions, in order to maintain his position. "But although I hold it improbable," he remarks, "that individual variability can depend on a direct action of external influences upon the germ cells and their contained germ plasm, because, as follows from sundry facts, the molecular structure of the germ plasm must be very difficult to change, yet it is by no means to be implied that this structure may not possibly be altered by influences of the same kind continuing for a very long time. This much may be maintained: that influences which are mostly of variable nature, tending now in one direction, now in another, can hardly produce a change in the structure of the germ plasm, and this is the reason why the cause of inheritable individual differences must be sought elsewhere than in these varying influences." "No one has doubted," he says, in reply to objections made by Virchow, "that there are a number of congenital deformities, birth-marks and other individual peculiarities, which are inherited. But these are acquired characters in the above sense. True, they must once have appeared for the first time, but we cannot say exactly from what causes; we only know that at least a great proportion of them proceed from the germ itself, and must therefore be due to alterations of the germinal substance. If Virchow could show that any single one of these hereditary deformities had its origin in the action of some external cause upon the already formed body (soma) of the individual and not upon the germ cell, then the inheritance of acquired characters would be proved. But this no one has yet succeeded in proving, often as it has been maintained."

The crucial test which Weismann demands is furnished

*Transactions of the American Neurological Association, 1877.

by Dupuy,* who made one thousand experiments on guinea-pigs to the fifth generation, critically rejecting all results which did not correspond to the most rigid tests of direct heredity, excluding all instances of indirect heredity, however demonstrable. He found that certain lesions of the spinal cord, or the brain or the sciatic nerve, give rise in guinea-pigs to epilepsy.

In from three to six weeks after the operation an alteration in the nutrition takes place in an area of skin which is limited by a line starting from the outer canthus of the eye, and running to the median line on the upper lip, enclosing the nostril, thence backward enclosing the lower jaw, to the anterior portion of the shoulder to the median dorsal line, to the base of the ear and inner canthus of the eye. The alteration in nutrition occurs on the side corresponding to the injury. The pain, heat and cold sense disappear by degrees, while touch appears to be exalted. Very soon, tickling this zone of skin gives rise to twitchings limited to the muscles of the eye and the eyelids on the same side. Later, the muscles of the mouth and of the face are affected, still later the contractions become more general, until the whole side is the seat of convulsions, then the convulsions attack the other side also. When things have come to this point the convulsions precede by a very short time complete loss of consciousness. If the subject of experiment be white, it is found that there is paleness of the face, but in all cases there is little foam at the mouth and dilatation of the pupils. The animal sometimes utters a cry corresponding to the epileptic cry in the man. Not only are the convulsions identical with those in epileptic man, but there is also loss of consciousness, a state of torpor, stupor, and even sometimes insanity. When epilepsy is due to the destruction of the sciatic nerve, the foot of the affected side loses the two outer toes, so that the animal has only one toe, the inner. When young are born to such a parent or parents (for it matters not whether one or both of the parents have been operated upon), they have very often only one toe on the posterior

**Journal of Nervous and Mental Disease, 1877, p. 544.*

foot. Sometimes, however, they have additional toes, which in this case, are attached by a pedicle to the limb.

Those peculiarities observed in the parents are in all their details witnessed in the guinea-pigs hereditarily born toeless, who have developed epileptic phenomena. In Dupuy's cases,* not only is the epileptic tendency (of which Weismann gives a wholly imaginative microbic explanation) inherited, but the very stigmata (loss of toes) which mark development of the parental epilepsy.

E. D. Cope's careful studies of the effects of impacts and strains on the feet of mammals are testimony difficult for Weismann to explain, since they also meet his requirements.

Weismann's admission of the inheritance of a tuberculous habit must logically, from the standpoint of degeneracy, be regarded as destroying his claims.

Kiernan has observed the case of a female cat in which brain mutilation had been induced to secure secondary cerebro-spinal degenerations. The mutilations were made under antiseptic precautions. The descendants of this cat had traces of this mutilation, and its results until the fourth generation, when the breed became extinct. This instance certainly fulfills all the Weismann requirements.

In the Lambert family a skin deformity, the last result of degeneracy in previous generations, was transmitted. This peculiarity appeared first, according to Proctor,† in the person of Edward Lambert, whose whole body, except his face, the palms of the hands and the soles of the feet, was covered with a horny excrescence. He was the father of six children, all of whom so soon as they had reached the age of six weeks presented the same peculiarity. The only one of them who lived transmitted the peculiarity to all his sons. For five generations all the male members of the family were distinguished by the horny excrescence which had adorned the body of Edward Lambert.

Shwe-Maong, one of the hairless Burmese, when thirty years old had his whole body covered with silky hairs,

Factors of Organic Evolution.
†*Hereditary Traits.*

which attained a length of nearly five inches on the shoulders and spine. He had four daughters, but only one of them resembled him. She had a son who was hairy like his grandfather. The case of this family illustrates rather curiously the relation between the hair and the teeth; for Shwe-Maong retained his milk teeth till he was twenty (when he attained puberty); then they were replaced by nine teeth, five only in the upper and four in the lower jaw. Eight of these were incisors, the ninth (in the upper jaw) being a cuspid tooth.

Certain motor expressions of disturbed functions are also inherited. Galton* describes the case of a man who, when he lay fast asleep on his back in bed, had the curious trick of raising his right arm slowly in front of his face, up to his forehead, and then dropping it with a jerk, so that the wrist fell heavily on the bridge of his nose. The trick did not occur every night, but occasionally, and was independent of any ascertained cause. Sometimes it was repeated incessantly for an hour or more. The gentleman's nose was prominent and its bridge often became sore from blows which it received. At one time an awkward sore was produced that was long in healing on account of the recurrence, night after night, of the blows which first caused it. His wife had to remove the buttons from the wrist of his nightgown, as it made severe scratches, and some means were attempted of tying his arm. Many years after his death his son married a lady who had never heard of the family incident. She, however, observed precisely the same peculiarity in her husband; but his nose, from not being particularly prominent, has never as yet suffered from the blows. The trick does not occur when he is half asleep, as, for example, when he is dozing in his arm-chair, but the moment he is fast asleep he is apt to begin. It, as with his father, is intermittent, sometimes ceasing for many nights, and sometimes almost incessant during a part of every night. It is performed, as it was with his father, with his right hand. One of his children, a girl, has inherited the same trick. She performs it likewise with the

*Cited by Proctor, *Hereditary Traits.*

right hand but in a slightly modified form; for after raising the arm she does not allow the wrist to drop upon the bridge of the nose, but the palm of her half-closed hand falls over and down the nose, striking it rather rapidly, a decided improvement on the father's and grandfather's method. The trick is intermittent in the girl's case also, sometimes not occurring for periods of several months, but sometimes almost incessantly. These "tricks" suggest nocturnal epilepsy, however.

The face of a child is often fully developed, yet, owing to some of the constitutional diseases, arrested development of the face at this point takes place. The second generation inherits this deformity, while the grandparents possess normally developed faces.

The following case came under my own immediate observation. The grandfather was in the habit of sitting in front of the fire with fingers locked together, twirling the thumbs in one direction, and then occasionally knocking the thumb nails together. Two of his three sons inherited this habit; the third brother had the habit of biting his nails when in a fit of abstraction. The nephew of the last has a similar habit under like conditions. The children of this nephew have in two instances shown a tendency to pick at the nails when in an unconscious state, from acute disease. The third child has a periodical tendency to do the same since it was four months old.

V. P. Gibney,* of New York, has reported a family consisting of father and mother, five children, and one grandchild. The father and mother are semi-ambidextrous. All of the children and the grandchild are semi-ambidextrous to an annoying degree; all of the movements which they perform with one hand are simultaneously performed by the other hand. The girls are obliged to use only one hand when dressing themselves, or when cutting patterns, and hold the other hand down by their side, because the two hands perform the same movements at the same time and would interfere with each other.

One factor in heredity concerning which there has been

*Journal of Nervous and Mental Disease, 1877, page 548.

much dispute, and whose existence has been denied, because of certain theories anent the nerve connection of the mother and fœtus, is that of maternal impressions. As Féré* has shown, the fœtus exhibits very decided reaction to sensory impressions on the mother. He cites cases of several women who, often in the midst of an ordinary dream, producing but very moderate excitation, not generally interrupting sleep, were awakened by fœtal movements. The dreams had nothing of the nightmare which would cause sudden contraction under the influence of a terrifying idea. They were merely the ordinary phenomena of sleep. Mental changes of the mother hence excite motor reactions in the fœtus, and, as with sensorial excitations, these reactions are stronger in the fœtus than in the mother. The mechanism of these motor reactions is, Féré points out, obviously due to unconscious and involuntary movement of the muscle walls of the womb. The organization of a morbid predisposition may be largely influenced by an accident accompanying conception or gestation. In some degenerates cannot be found a trace of hereditary defect. The fact cited explains how sensorial excitations or repeated and violent emotions in the mother during pregnancy give rise to profound nutritive troubles in the fœtus, and especially in its nervous system. These congenitally degenerated beings (*ab utero*) can hardly be distinguished from those having direct heredity. A considerable number of cases of epilepsy, idiocy, etc., are recognized as having arisen from alcoholism in the mother. Psychic troubles in the mother may react upon the fœtus in an analogous way. The prominent facts which show the influence of the psychic state of the mother upon the somatic condition of the fœtus explain the action of the imagination of the mother upon the development of the product of conception. The opinion which refers the origin of birth-marks to intense mental impressions on the part of the mother is not without physiological foundation. Concurrently with the motor phenomena, stigmata may become developed by vascular† and nutri-

**Sensation et Mouvement*, chap. xiv.

† *Harriet C. B. Alexander. Medicine*, Oct., 1898.

tive troubles produced under the influence of a strong excitation or by the imagination.

Spitzka,* who approached maternal impressions from an actively skeptical standpoint, had his skepticism shaken by specimens (preserved in the British Museum) of newly hatched chicks, all of which had a curved beak like a parrot and the toes set back as in that bird. According to the report of the curator the hens in the farmyard where these monstrosities were hatched had been frightened by a parrot which, having escaped, fluttered among them some time before the eggs were laid and greatly frightened those from whom the malformed chicks were received. It is certain that the chief argument of those who deny that maternal impressions are transmitted is defeated by this case. They have usually asserted that the explanation of the nature and cause of a birth-mark was always an after-thought on the part of the mother. But there was no after-thought in this case. The hens did not publish a theory as to the malformation of their chicks. It was their owner, a gentleman of intelligence and culture, who observed the casual occurrence, and who verified the almost photographic truthfulness of the germ monstrosity by depositing it in a museum as a permanent record at which none may cavil.

Since then, the singular freaks attributable to maternal impressions of women Spitzka has seen, have become so numerous that he has been compelled to negative the argument that they were merely accidental coincidences. He has never seen an idiotic, malformed child or one afflicted with morbid impulses derived from healthy parents free from hereditary taint in which a maternal impression could not be traced.

In a large number a direct correspondence between the maternal impression and the nature of the deformity or peculiarity could be discovered. He reports the case of a woman, about five months pregnant, who, while standing in her yard, saw her husband stab into the belly of a goat he

* *Medical Classics*, July and August, 1888.

had slaughtered. The sight of the suddenly protruding visceral mass, which happened to be imperfectly bilobar, shocked her extremely, and, starting back, she, in her great revulsion, feeling a strange sensation at the nape of the neck or back of the head, clutched the former with her right hand. The impression continued to haunt her. When the child was born and she saw its deformity she instantly exclaimed, "Oh, the intestines of that goat!" At the back of its head the child had a large tumour of the consistency of a loose sac of a bluish colour, showing convolutions interpreted by the mother as a reproduction of the intestinal convolutions that had so shocked her. In reality they were the convolutions of a hernia containing the posterior ends of both cerebral hemispheres. The accidental resemblance of the deformity to the mental impressions was striking.

A. Lagorio* brought before the Chicago Medical Society several cases in which maternal impressions had produced decidedly abnormal births with deformities resembling those feared by the mother. Kiernan, in discussing these, pointed out that all were instances of checked development. He was of opinion that moral shock, generally directed, played the chief part in maternal impressions through checking development and causing either general or local reversion. Here, as Spitzka† shows, the statistical method can be applied. It has been long known that profound grief, mental or physical shock acting on the mother produce cerebral defect or generally arrested development in the offspring. Of 92 children born in Paris during the great siege, 1870-71, 64 had mental or physical anomalies and the remaining 28 were weakly, 21 were intellectually defective (imbecile or idiotic), and 8 showed moral or emotional insanity. These figures, furnished by Legrand du Saulle, justify the popular designation by the working men of Paris of the defective children born in 1871 as "*enfants du siége.*"

After the great Chicago fire in 1871, birth-marks, deformities and mental defects were noticed to occur among the offspring whose mothers were pregnant with them pending the exciting time during and after the conflagration.

Chicago Medical Journal and Examiner, 1883-4, p. 426.
†*Somatic Ætiology of Insanity*, p. 41.

Spitzka has seen in practice constitutionally melancholic or mentally defective children in whom no other predisposing cause could be discovered than that the mother was struggling with direct or indirect results of the financial crisis of 1873. In several of these cases the death of the father was a contributory cause of maternal depression. In Berlin the financial crisis of 1875-80 was followed by an increase in the number of idiots born. Lombroso attributes a series of cases of microcephaly to profound mental impressions occurring during pregnancy. To the same class of cases belong the hermaphrodites born by mothers who have been frightened in their first pregnancy and who continue to bear hermaphrodites. The continual and not ill-founded dread that the succeeding children may resemble the first is to be regarded as a contributory cause. Observers who have had a large experience with illegitimate births believe that the mental agony suffered by the unfortunate mother reacts upon the fœtus, causing arrest of development, and thus accounting for the frequent occurrence of idiocy in illegitimate children.

The influence of maternal diet on the fœtus is excellently illustrated in the results of the "fruit diet" advised by certain vegetarians. Here the children* become, as Elise Berwig has recently shown, rickety, irritable, peevish, liable to convulsions, morally peculiar, and otherwise defective in contrast with children born of the same parents without "fruit diet" during pregnancy.

Kiernan,† after citing instances reported by Amabile Carson, F. B. Earle, Erlenmeyer, F. H. Hubbard, C. H. Hughes, Mattison, and others, of congenital opium habit where opium was needed to preserve the infant during the first months of life, states that inheritance of the opium habit seems at first an isolated phenomenon, but zoologists have pointed out that pigeons whose ancestors were fed on poppies became intractable to opium. Murrell found that the same was relatively true in England of persons descended from Bedfordshire ancestors who used infusions

Medicine, September, 1898.
†*Review of Insanity and Nervous Disease*, March, 1891.

of poppies as a prophylactic against malaria. Nervous diseases were, however, relatively prevalent in these districts. Narcotic habits in the ancestors produced descendants in whom the normal checks on excessive nervous action are removed so that paranoiacs, periodical lunatics, epileptics, hysterics, congenital criminals, congenital paupers, or other degenerates, result. This influence is most strongly exerted when the maternal ancestor is the one affected, for to her is committed the development of the ovum prior to conception and of the child subsequently. If either is interfered with by a habit, a being defective in some respects is the result. The direct inheritance of the opium habit has been shown experimentally by Levenstein, who found by experiments on pregnant dogs and rabbits that the use of opium during pregnancy produced either abortion or still-births, or rapidly dying offspring.

In a similar manner Rennert* has shown that lead-poisoning occurring in the mother is apt to produce macrocephalism with frequent idiocy in the child.

This brings the observer face to face with the problem of morbid heredity. It may at once be admitted that, as has been claimed by a large number of observers, morbid heredity, especially in its graver forms, is much less frequent than at first would be expected. J. P. Gray, of Utica, New York, went so far as to claim that disease is never transmitted, but this is contradicted by his own hospital reports, which to the day of his death, contained a table headed, "Statistics of hereditary transmission of the disease." It is true, however, that the descendants of a victim of morbidity or abnormality do not always have the morbidity or abnormality of the ancestor. In some cases all apparent morbidity or abnormality is wanting. In other cases slighter abnormalities are to be detected. Here the observer is brought face to face with the operation of two general principles which are interdependent: the transmutation of heredity and atavism, or "throwing back" as the cattle breeders call it. Tennyson voices the general erroneous

**American Journal of Obstetrics, October 1882.*

opinion of the always evil effects of atavism in his "Locksley Hall Sixty Years After."

"Evolution ever climbing after some ideal good
And Reversion ever dragging Evolution in the mud."

As Kiernan has shown, atavism at times tends to preserve the type, and offsets the influence of degeneracy. This element of atavism underlies not merely the production of the sound scions of degenerate stock, but also those in whom the degeneracy affects the earlier and not the later acquirements of the race. The contrast of the moral imbecile who is unable to acquire an idea of right, or the idiot of the lowest grade who can hardly be taught to keep himself clean, with the otherwise sound, sane, able victim of hereditary gout, is very great. Yet all the links of the chain connecting, in the same family, these contrasted types, can often be found. The law laid down as to absolute extinction through degeneracy by Morel and others can only be regarded as absolutely true when applied to a given type rather than the race as a whole. Indeed, environment may play a part in preserving a degenerate who would otherwise die out. Thus in societies at a certain stage of culture, imbeciles, paupers, lunatics, and congenital criminals live at large and even propagate through legal marriage. The seemingly enormous increase of the defective class which occurs in frontier communities when the classes begin to be placed in public institutions is an excellent illustration of this.

Manifestations of morbid heredity result not in inheritance of the whole defect but in disturbance of relations of structure and hence of function producing, as Kiernan remarks, a constitutional deficiency which takes the line of least resistance. The extent and direction of this line of least resistance depends on the amount of healthy atavism which separate organs and structures of the body preserve. The line of least resistance sometimes taken is excellently illustrated in the occurrence of stigmata already pointed out in the case of epileptic guinea-pigs.

This unilateral predisposition (which, as Kiernan has shown, is due usually to heredity or intra-uterine causes) may be artificially produced. Kasparek* cut one sciatic

* *American Medico-Surgical Bulletin*, July 15, 1896.

nerve of a guinea-pig and (after all inflammatory symptoms had subsided) injected the opposite ear with cultures of pus microbes. He killed the animal after some days. The sound side was found free from suppuration, but immense abscesses existed on the side of the cut nerve. Such local predisposition was pointed out by Merrill* over forty years ago. This condition occurs, as Féré has shown,† in many systemic and infectious diseases which presents a localization due to heredity, or determined by anterior morbid state of the nervous symptom. Sometimes these manifestations are limited to the side free from nervous trouble.

As a rule they attack the side which is the predominant seat of nervous symptoms. Féré points out that in chromatic iris asymmetry, the iris (coloured part of the eye) is most coloured on the side most affected by arrest of development. Localization of nervous trouble occurs on the side most affected by hare-lip. Heuse has observed the co-existence on the same side of congenital cataract and of deformities of the skull and chest.

Hernia is often an expression of hereditary defect (Le Double) taking the unilateral line of least resistance. Testicle inflammations of microbic origin (venereal or otherwise) occur as a rule on the side where hernia is located in the groin. In one-sided malformations of ovary or testicle (decreased or increased in size or changed in shape or location) microbe inflammation almost always occurs at the seat of the anomaly. This principle is illustrated in the experiments of Dupuy.‡ Here, while as a rule, the scions of guinea-pigs (rendered epileptic by section of the sciatic nerve) were epileptics and had deficient toes, still in some epilepsy resulted without the toe anomaly, while still more rarely the toe anomaly was present without the epilepsy.

The same principle is shown by certain experiments of Charin and Gley,§ who for five years conducted experiments calculated to throw light on the influence on the off-

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* *American Journal of the Medical Sciences*, October, 1856.

† *La Famille Neuropathique.*

‡ *Transactions American Neurological Association*, 1877.

§ *Transactions de l'Institute Pasteur*, 1896.

spring of parental reception of virus. Either both male and female have been inoculated with the bacillus of blue pus or its toxins, or but one animal has been inoculated. The results have not been uniform. Most frequently there ensues sterility, abortion, or progeny that die immediately. In rare instances the offspring survive; more rarely still are they healthy. Certain rabbits (born of these undeveloped animals) were provided with enormous epiphyses (ends of bones), the shafts of the bones being shortened. Two rabbits were born of a couple of which the male alone received inoculations of sterilized culture. Five rabbits were born of these two, of which two were normal, and a third (whose ears were rudimentary) died in a few days. In the remaining two the ears comprised only fragments with jagged upper edges. The tails were but two centimetres long. The external orifice of the vagina (one rabbit was a male and the other a female) was oblique. One of the limbs (the hind in the male and the fore in the female) was much shorter than its fellow, the difference being four centimetres. The shortened limb ended in a kind of stump, there being no foot or toes.

These experiments illustrate the transformation of heredity, that is the manifestations which show the line of least resistance that the morbid heredity has taken. As Moreau (de Tours) remarks,* "An incorrect conception of the law of heredity looks for identical phenomena in each succeeding generation. Some have refused to admit that mental faculties were subject to heredity, because the mental characters of the descendants were not precisely those of the progenitors. Each generation must copy the preceding. Father and son must present the spectacle of one being, having two births, and each time leading the same life, under the same conditions. But it is not in the heredity of functions, or of organic or intellectual facts that the application of the law of heredity must be sought, but at the very fountain-head of the organism, in its inmost constitution. A family whose head is insane or epileptic does not of necessity consist of lunatics or epileptics, but the chil-

La Psychologie Morbide.

dren may be idiotic, paralytic, or scrofulous. What the parents transmit to the children is not insanity, but a vicious constitution which will manifest itself under various forms in epilepsy, hysteria, scrofula, rickets, &c. This is what is to be understood by hereditary transmission."

The same position has been taken by Rush,* the pioneer American alienist; by Maudsley,† by Krafft-Ebing,‡ by Meynert, by Mercier, by Féré,§ and others. Morel,‖ the chief accepted apostle of the doctrine of degeneracy, remarked, nearly at the same time as Moreau, that "heredity does not mean the very disorder of the parents transmitted to the children with the identical mental and physical symptoms observed in the progenitors, but means transmission of organic disposition from parents to children. Alienists have, perhaps, more frequent occasion than others for observing, not merely this hereditary transmission, but likewise various transformations which occur in the descendants. They are aware that simple neuropathy (nervous tendency) of the parents may produce in the children an organic disposition resulting in mania or melancholia, nervous affections which in turn may produce more serious degeneracy and terminate in the idiocy or imbecility of those who form the last link in the chain of hereditary transmission."

What is true of the organism as a whole is true of the cells forming its organs. It should be remembered that while cell life is altruistic or subordinated to the life of the organ (through the law of economy of growth recognized by Aristotle), and through it to the life of the organism as a whole, altruism is not complete enough to prevent entirely a struggle for existence on the part of the cells or the individual organs. With rise in evolution this struggle decreases to increase with the opposite procedure of degeneracy. From it results the phenomenon of arrested and excessive development.

As Dareste has shown (and the fact has been corrobo-

**On the Mind*, 1895.
†*Pathology of the Mind.*
‡*Lehrbuch der Psychiatrie.*
§*La Famille Neuropathique.*
‖*Dégénérescence de l'Espece Humaine.*

rated by Spitzka*), embryologists can imitate natural malformation of the nerve centres by artificial methods. By wounding the embryonic and vascular areas of the chick's germ with a cataract needle, malformations are induced, varying in intensity and character with the earliness of the injury and its precise extent. More delicate injuries produce less monstrous development. Partial varnishing or irregular heating of the egg-shell in particular, results in anomalies comparable to microcephaly (little head) and cerebral asymmetry. This latter fact (showing the constancy of the injurious effect of so apparently slight an impression as the partial varnishing of a structure not connected with the embryo at all directly) suggests the line of research to be followed in determining the source of the maternal and other impressions acting on the germ. What delicate problems are to be solved in this connection may be inferred from the fact that eggs subjected to the vibration and shocks of a railroad journey are checked in development for several days, or permanently arrested. A more delicate molecular shock during the maturation of the ovum, during its fertilization, or finally during embryonic stages of the more complex, and therefore more readily disturbed and distorted human germ, accounts for the disastrous effect of insanity, emotion, or other mental or physical shock of the parent on the offspring. The cause of the majority of cerebral deformities exists in the germ prior to the appearance of the separate organs of the body. Artificial deformities produce analogous results because they imitate original germ defects, either by mechanical removal, or by some other interference with a special part of the germ. Early involvement of the germ is shown by the fact that the somatic malformations of the hereditary forms of insanity often involve the body elsewhere than in the nervous axis. The stigmata of heredity—defective development of the urogenital system, deformities of the face and skull, irregular development of the teeth, misshapen ears and limbs—owe their grave significance to this fact. Like deformities of the brain, these anomalies are also more marked and constant

* *St. Louis Clinical Record*, 1878-81.

with the lower forms of the hereditarily based systematized perversions of the mind than the higher. It is easy from these results to understand how far and how the nervous system has its part in the disorders of general development. It can be easily understood how the individuals who present most deformities are equally those who suffer from most decided disorders of the nervous system.

These morbid manifestations of heredity occur in certain categories, either local as to organs or structures, or affecting the body as a whole. These categories Moreau (de Tours) lucidly sums up as: First, absence of conception; second, retardation of conception; third, imperfect conception; fourth, incomplete products (monstrosities); fifth, products whose mental, moral and physical constitution is imperfect; sixth, products specially exposed to nervous disorders, in order of frequency as follows—epilepsy, imbecility or idiocy, deaf-mutism, insanity, cerebral paralysis, and other cerebral disorders; seventh, lymphatic products; eighth, products which die in infancy in a greater proportion than sound infants under like conditions; ninth, products which, although they escape the stress of infancy are less adapted than others to resist disease and death.

The explanation of these morbid manifestations lies in the very foundations of embryology. Bearing in mind the principles of individuation pointed out by Spencer, it is easily understood how reversal of this principle would produce greater and greater destruction of the complex functions, resultant on increased reproductive power of cells (whose environment is not suited to such reproductions) and thus lead to such a struggle for existence as to produce sterility (from interdestruction of the ovum cells, or the cells forming the spermatozoon). This condition is further increased by the operation of two biologic principles. The first relates to the cells or organs forming an organism. The second, as Von Baer has shown, deals with the relation of the organs to each other.

Vertebrate embryos of a common type, at their origin, assume successively a number of common forms before definitely differentiating. Dareste points out that supernumer-

ary organs do exist in these common forms at one phase of embryonic life. This community of embryonic types and this last fact explains repetition of teratologic types or monstrosities in vertebrates. This community of origin, moreover, indicates that a higher vertebrate embryo contains in essence the organs and potentialities of lower vertebrates, and that under the influence of heredity or accidental defect an organ belonging to another species may develop, or an organ constant in a species may be lacking in an individual, without the necessity of explaining the immediate effects by distant atavism. Some anomalies found among degenerates recall types less elevated than man, and very distant from him and even his possible Lemurian precursor.

It is obvious from the principles already demonstrated that both the secondary effects of infectious disorders and injuries are reproduced in various types in the offspring. The malformations of the limbs experimentally demonstrated to be due to ancestral infection by Charin and Gley, and to injury by Dupuy, noticeably occur in men. Moor has observed supernumerary fingers in an imbecile girl; her grandfather and one uncle are polydactylous and insane. F. S. Coolidge has had under observation a case which excellently depicts these deformities in man. Kiernan* reports the case of a man whose grandfather and father had been prophets of the Lord, as shown by the fact that on one side of the body they had six toes and six fingers, and the two sides of the body were unequal, the six-fingered one being smaller than the other. This father and grandfather were highly regarded in a secluded vale in Norway as religious teachers and for their power to cure disease by charm. The father had ten children, of whom three were born dead and six died in infancy. Kiernan's patient was the only survivor of this family. During boyhood he experienced various persecutions, some by unseen agencies, some on the part of the villagers, who towards the end of his father's life also persecuted the father. These persecutions seem to have been withdrawn all by the peasants on account of their belief in the father's ability to charm sickness out of

**Neurological Review*, vol. i., 1886.

cattle, evidently due to growing popular intelligence. This was regarded by the father as the result of persecution by the devil, who was desirous of trying him as Job was tried. It was revealed to him that his son should likewise suffer persecution, which would also be the work of the devil. The son heard unseen persons, who pointed him out in school as the son of the sham wizard. In consequence he was avoided by all his schoolmates except the members of one family who still retained their belief in the father's supernatural powers. Into this family the son married; then, pressed by his unseen persecutors, he came to the United States. Here he worked at his trade as a carpenter, and had no return of any persecutory delusions, although he still believed he was a prophet. On admission to the insane hospital, twenty years after his arrival in the United States, he was found to have such a decidedly asymmetrical body that suspicions of general hemiatrophy were excited, but the condition was found to be congenital. The hand and foot of the seemingly atrophic side had six fingers and toes. The man had been sent to the insane hospital in consequence of an altercation with a neighbor who was clearly in the wrong; but both being arrested, the patient's *amour propre* was aroused and he declared his prophetship, which led to his trial and commitment as a lunatic. His wife, who applied for his discharge, was also a paranoiac. They had had ten children, of whom three were still living at the ages of six, eight, and ten. Two of these were six-toed and six-fingered unilaterally, and one of them, a boy, had the peculiar general asymmetry of the father. The third child was seemingly normal.

The experimental results of Charin and Gley, on the degeneration produced in offspring by ancestral microbic infection, tend to show that not merely are the extremities affected, but in certain cases the whole organism along lines laid down by Moreau's categories. This is demonstrated by study of the degeneracy stigmata of phthisical families. Alex. James,* Ricochon, C. E. Paddock† and other shave shown that (in addition to the ordinary stigmata) the biologic stigmata

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**La Famille Neuropathique.*

**Medicine*, June, 1898.

of degeneracy (such as plural and quickly repeated births) are frequent among phthisical families. The same phenomena often occur in families whose scions are attacked with diabetes, obesity, articular rheumatism, cancer and gout. De Giovanni* finds that particular nervous states exist in those predisposed to tuberculosis, whom he divides into erethists (restless,) torpids, and energetics. There is a diminutive heart, whose right ventricle has comparatively exaggerated dimensions, while the arteries have lessened calibre.

A family illustrating excellently the transmutation of morbid heredity is one followed through five generations by Kiernan.† A farmer lived twenty miles distant from his nearest neighbor, whose only child he married. The daughter had led a lonely life till her courtship at the age of 28 by the farmer, then three years younger. The farmer married her for $300, after having impregnated her. He then found lead on his farm and went to a city. A stock-company bought his farm and launched him into the stock market, where he made money more as a cunning tool than an adventurer. He became a high liver, gouty and dyspeptic, and died with symptoms of gouty kidney at 70. The couple had five children. The eldest, a son, became a "Napoleon of Finance," but, inheriting his father's cunning, died wealthy and within the pale of the law. He married a society woman, the last scion of an old family. The second child, a daughter, was club-footed and early suffered from gouty tophi. She married a society man of old family who had cleft palate. The third child, a daughter, had congenital squint. She married a man who suffered from migraine of a periodical type. The fourth child, a daughter, was normal. She married a thirty-year-old active business man, in whom ataxia developed a year after marriage. The fifth child, a son, was ataxic at eighteen. The children of the "Napoleon of Finance" and the society woman were an imbecile son, a nymphomaniac, a hysteric, a female epileptic who had a double uterus, and a son who wrote verses and was a society man. The cleft-palated society man and

* *Bulletin Medical*, 1887.

† *Medicine*, September, 1897.

club-footed woman had triplets born dead and a squinting, migrainous son who, left penniless by his parents, married his cousin the nymphomaniac daughter of the "Napoleon of Finance," after being detected in an intrigue with her. The migrainous man and squinting daughter of the farmer stockbroker had a sexually inverted masculine daughter, a daughter subject to periodical bleeding at the nose irrespective of menstruation, as well as chorea during childhood, a normal daughter, a deaf-mute phthisical son, a daughter with cloacal formation of the perineum, an ameliac son, a cyclopian daughter, (with one central eye) born dead, and, finally, a normal son. The sexual invert married the versifier son of the "Napoleon of Finance." The progeny of the normal daughter of the farmer stockbroker and the ataxic husband were a dead-born, sarcomatous son, a gouty son, twin boys paralyzed in infancy, twin girls, normal, a normal son, and a son ataxic at fourteen. The progeny of the nymphomaniac daughter and her strabismic, migrainous cousin were a ne'er do-well, a periodical lunatic, a dipsomaniac daughter who died of cancer of the stomach, deformed triplets who died at birth, an epileptic imbecile son, a hermaphrodite, a prostitute, a double monster born dead, a normal daughter, and a paranoiac son. The ne'er-do-well married his nose-bleeding cousin. The gouty son of the farmer's normal daughter married the hysteric daughter of the "Napoleon of Finance." They had a son born with such general asymmetry as to seem hemiatrophic, a prostitute, dead triplets, a male sexual invert, a colour-blind daughter, and a normal son. The colour-blind daughter married the paranoiac grandson of the "Napoleon of Finance." The progeny of the sexual invert and the versifier, who were soon divorced, were a daughter with periodical nymphomania, who had some artistic and literary ability, and a son who died of gastric cancer. The scions of the ne'er-do-well and his nose-bleeding cousin were a moral imbecile, a "bleeder," a stammering daughter who had an uvular deformity, a deaf-mute with undescended testicle, dead-born triplets, an infantile paralytic son, and dead-born quadruplets. The progeny of the paranoiac and his colour-blind cousin were

an exophthalmic daughter, an epileptic with undescended testicle, a cleft-palated imbecile with a cloaca, dead-born quadruplets, an idiot boy, and a "bleeder."

Doutrebente reports the following family history: First generation: Father intelligent, became melancholic, and died insane. Mother nervous and emotional. Second generation: Ten children; three died in childhood, seven reached maturity as follows: Daughter A, melancholic; daughter B, insane at twenty; daughter C, imbecile; daughter D, a suicide; son E, imbecile; son F, melancholic; son G, a melancholic. Third generation: A has ten children; five die in childhood, one is deformed, one has fits of insanity, one is eccentric and extravagant, two are intelligent and marry, but are childless. B leaves no issue. C has one child, a deformed imbecile. D has three children; one is an imbecile, one dies of apoplexy at twenty-three, and the third is an artist described as "extravagant." E has two children; one dies insane, the other disappears and is supposed to have committed suicide. F is childless. G has one child, who is imbecile.*

Strahan† gives a genealogy which shows very clearly the close kinship existing between the cancerous diathesis and other forms of constitutional degeneration whose outward manifestations are infantile convulsions, suicide, epilepsy, insanity, lymphatism and sterility. The father of this family died of stomach cancer at sixty. He had a brother who cut his throat at fifty-six; the mother, an apparently healthy woman, died of a fit, at the age of fifty-four. To this pair seven children were born: 1. A son who died of stomach cancer at fifty-eight. 2. A son who died in convulsions at thirteen weeks. 3, 4, and 5. Three daughters who died of phthisis, one at sixteen, the other two later in life, and after being married for many years; none left any issue. 6. A son who is epileptic, and has twice been confined in lunatic asylums; married, but no issue. 7. A son who is sane, and enjoying fair health. Here the taint in the mother appears to have been slight;

* *Annales Medico-Psychologiques*, March-April, 1869.

† *Marriage and Disease*, pp. 186-7.

still, it was there, and while certainly preventing reversion, it doubtless deepened the degeneration of the father in the children. In the father's stock the taint was much deeper. While it was exhibited as cancer in him, it took the form of suicidal impulse in his brother. In the children of this pair the disease of the father is transmitted to the eldest son; but can it be denied, Strahan asks, that the infantile convulsions, the liability to tubercular disease, the epilepsy, the insanity, and the marked sterility were but the varying evidences of the degenerate nature, inherited from a father who might have died of some acute disease at any age under 66, taking the secret of his nature with him?

The value of the principle of atavism in off-setting degeneracy is nowhere better illustrated than in the history of famous families of degenerates like that of the Binswangers, of "Margaret," of the Jukes, as well as those reported in France, Germany, Austria, Russia, and the Scandinavian countries. The Rougon-Macquart family of Zola (which had its actual prototype in the Kerangal family described by Aubry*) had, like these, several scions in whom former normality regained its power through atavism. Sometimes this atavism is not shown to any greater extent than a slight modification of the abnormality or morbidity.

Telegony, the so-called and much-debated heredity of influence, whereby the children of a second marriage resemble the first husband, may be explained by a biologic principle demonstrable in the lower animals, whereby conjugation not sufficient to fecundate ova is sufficient so to impress them that when finally fecundated they bear characteristics of the first conjugation. Its part in either normal or degenerate heredity is but slight. Some instances charged to it might be attributed to mental impression on the mother.

Luys† excellently sums up the whole question of heredity when he remarks: "Heredity governs all the phenomena of degeneracy with the same results and the same energy as it controls moral and physical resemblances in

* *Annales Medico-Psychologique*, S. 7, t. xvi.

† *Maladies Mentales*, p. 215.

the offspring. The individual who comes into the world is not an isolated being separated from his kindred. He is one link in a long chain which is unrolled by time, and of which the first links are lost in the past. He is bound to those who follow him, and to the atavic influences which he possesses; he serves for their temporary resting-place, and he transmits them to his descendants. If he come from a race well-endowed and well-formed, he possesses the characters of organization which his ancestors have given him. He is ready for the combat of life, and to pursue his way by his own virtues and energies. But inversely, if he spring from a stock which is already marked with an hereditary blemish, and in which the development of the nervous system is incomplete, he comes into existence with a badly balanced organization; and his natural defects, existing as germs, and in a measure latent, are ready to be developed when some accidental cause arises to start them into "activity."

SELECTIONS.

PSYCHIATRY.

MENTAL AND PHYSICAL STATE OF CRIMINALS CONVICTED OF SEXUAL CRIME.—Henri Colin, M. D., Physician of the Criminal Insane Hospital and the House of Detention, Gaillon, France, says (*Journal de Med. de Paris*, August 20, 1898), it is usual in the houses of detention to examine the prisoners from a medical standpoint from the time of their arrival, in order to judge of their physical state, and of any treatment which may be needed. Since I have been in charge of the house of detention and the insane hospital of Gaillon, I have had occasion to receive a large number of suspects and of convicted criminals and I have been struck among other things with the fact that the individuals convicted of criminal or indecent assault have been almost invariably abnormal, not only, as might readily be believed, from the mental standpoint but also from the physical. I do not wish to speak here of idiots whose mental inferiority is so evident that they do not often arrive at the prison, without taking into account the fact that among them sexual organs have often a normal or even exaggerated type. I wish to discuss individuals seemingly normal in whom examination has revealed numerous stigmata either mental or physical. I shall limit myself to simple cases of indecent or criminal assault, without discussing sexual inverts, pæderastes, etc., who are very numerous in prisons. I recall in this last particular a hair dresser, a passive paederast who had been condemned for having been surprised osculating the penis of an infant boy. This person was a true sexual lunatic and gave the impression of a dog in rut provoking his fellow prisoners and submitting to punishment after punishment without

being able to control his desires. The prisoners who render themselves liable to conviction for attempts at criminal or indecent assault properly so-called may be divided into two great categories. In the first should be ranged invalids, broken-down people and the old. Besides their general weakness these prisoners present very often sexual anomalies: small penes, monorchidia, etc. In the second class can be ranged the feeble-minded and mentally weak, among whom sexual stigmata of degeneracy are very frequent.

At first sight it may seem paradoxical to affirm that criminal and indecent assaults are as a rule made by debilitated, badly-balanced, aged, or sexually degenerate individuals. It is difficult to give the cause but, all other things being equal, a capital importance should be attributed to a sort of fear or of timidity very natural to persons knowing their inferior physical state. This same timidity is increased by ridicule of these unfortunates by their comrades or by the woman to whom they address themselves. This explains, also, the fact that the victims of the assault are in general children and more often very young ones. In the majority of cases the convicted individuals have never had normal relations with females or but seldom. In old men this timidity is generally complicated with senile avarice. In support of the preceding statements I should cite succinctly several extracts from judicial records.

Case first—A 58-year-old man was condemned to five years imprisonment; there had been no previous condemnation. He had committed criminal assault on two little girls, one 7, and one 6, years old. He was mentally defective, of a repugnant aspect, badly built and had very well marked kyphosis. He was less than five feet in height; his penis was very small.

Case second—A 62-year-old man was condemned to fifteen months imprisonment. He was of a low stature. He had enticed a little girl of eight years into a stable and practiced obscene osculation. He had been twice condemned for vagrancy before.

Case third—A 42-year-old man was condemned to two years imprisonment but had never been previously arrested.

He had committed several complete and incomplete criminal assaults on two sisters aged 9 and 7. He was lame from hip joint disease. His penis was very small and very short. He presented several stigmata of degeneracy.

Case fourth—A 19-year-old boy who had been several times convicted of vagrancy and theft, enticed a 6-year-old girl into a cellar and made two attempts at criminal assault. He is of inferior intelligence. His penis and testicles are much less than normal. He was given two years.

Case sixth—A 25-year-old man was condemned to two years imprisonment for two attempts at criminal assault upon a 12-year-old girl. He was blind and of inferior intelligence. The sexual organs were infantile.

Case seventh—A 25-year-old man was condemned to four years imprisonment for indecent assault on two little girls. He was less than the usual height. He presented several stigmata of degeneracy. His sexual organs were diminutive and he had no clear idea of his crime.

Case eighth—A 22-year-old man who had been several times convicted of vagrancy was surprised in a criminal assault on a 4-year-old girl by the mother. He was weak-minded, presented marked cranial and facial asymmetry. His jaws and teeth were imperfect. He was a monorchid. The sexual organs were infantile in type.

Case ninth—A 16-year-old boy was condemned to fifteen months in prison for having delivered himself with his mother to repugnant acts of obscenity. Before an open window they showed themselves almost naked and delivered themselves to obscene osculation. The mother was declared insane on examination. The boy was far below the middle height. There was facial and cranial asymmetry and almost complete absence of the nose. The pubes and armpits were destitute of hair. The sexual organs were infantile in type.

Case tenth—A 16-year-old boy was condemned to two years in prison for an attempt on a 6-year-old child. The prisoner denied the attempt. His height was below the normal as also was his intelligence. His sexual organs

were infantile as also was his voice. He presented marked stigmata of degeneracy.

HALLUCINATIONS AMONG THE SANE.—The Society for Psychical Research (Proceedings, part XXVI, Aug., 1894), makes a report "On the Census of Hallucinations," by the select committee under the chairmanship of Prof. Henry Sidguick, which gives the summary of 17,000 answers collected by 410 questioners. The inquiry has been such as to include visual as well as auditory tactile hallucinations, the former being largely in the preponderance.

This report holds as a proved fact, that "*between deaths and apparitions of the dying person, a connection exists which is not due to chance alone.*"

This report is not the work of medical men. Mr. Myers, the only physician on the committee, died before the completion of the report: and this is unfortunate, because we should regard with great interest the verdict of medical thinkers on some phases of this subject; not that they are or would be more acute, careful or thoughtful in investigation, but because their minds would be more or less influenced by pre-conceived opinions as to hallucinations, especially auditory voices and sounds,—all persons known to have been in asylums were excluded, but there are many insane persons in the community who believe themselves sane and in good health, and who are so regarded by their friends, who might be the victims of insane hallucinations. The summary of the affirmative answers were; from men, 7.8; women, 12.0, the average percentage being 9.9.

Many well-known historical personages believed they heard audible voices, who were not regarded as insane by their contemporaries, and the general opinion of mankind has varied upon this subject at different eras.

Hallucinations of sight or vision may be due to some defect in the organs of perception.

Allan McLane Hamilton says, "that visual hallucinations are largely dependent upon retinal phenomena, and are often connected with ischemia or disturbed circulation at the back of the eye." In speaking of "auditory hallucinations,"

says: "They usually consist of the recognition of the sound of imaginary voices and the repetition of many ordinary sounds. A distinctly insane hallucination of hearing has nearly always valuable diagnostic significance, for the reason that it indicates a more general derangement than those of the other senses. A person may readily have such a sane hallucination as hearing an imaginary voice, as the result, possibly, of an irritation of the middle ear, but the insane individual expresses his fear of the sounds of voices speaking through a telephone, the register, or cracks in his room; or, in a more disorderly condition, it is the figures in the pictures upon the wall who are addressing him."

He also says: "Auditory hallucinations that convey no suggestion of insanity, like all other ordinary false perceptions, are nearly always immediately removed, are recurrent in the original form, and of course are not associated with other evidences of derangement."

Auditory hallucinations may occur in certain forms of hysteria and as the result of disease. This class were, so far as the committee could do, eliminated from the census; and Hamilton, before quoted, says:

"The expression of hallucination of all kinds is very irregular and does not necessarily indicate insanity;" citing the views of Lombroso and Brierre de Boismont. Acute alcoholism is attended with hallucinations, both of sight and hearing, and are clearly induced by hypnotic suggestion.—*Medico-Legal Journal.*

RATIO OF DIPSOMANIACS TO ALL INSANE IS:—In Italy, 12 per cent.; France, 21 per cent.; United States, 26 per cent.; and Scotland, 28 per cent.; and the expectancy of life, drunk and sober, as follows: At age of 20 years, drunk, 15 years; sober, 44 years; at age of 30, drunk, 14 years; sober, 36 years; at age of 40, drunk, 11 years; sober, 29 years.—The *World* Almanac, in *Medico-Legal Journal.*

CLINICAL NEUROLOGY.

LARYNGEAL PARALYSIS IN LOCOMOTOR ATAXIA.—Dr. E. L. Vansant recently presented to the College of

Physicians of Philadelphia (*Philadelphia Medical Journal*, Feb. 19, 1898) a case of bi-lateral abductor paralysis of the larynx accompanying tabes dorsalis. The patient, a man, 43 years of age, is a driver of a carriage and is much exposed at night. He had a well-marked history of locomotor ataxia, commencing about two years ago. At that time he had attacks of dyspnea, and Dr. Vansant, who examined the larynx by request of Dr. Spiller, attributed the attacks to spasm. Under treatment for tabes, he improved so far as cough was concerned, but the other symptoms steadily progressed. About two months ago he caught cold, and the cough returned, accompanied by great dyspnea. During an examination of the throat by Dr. Vansant two weeks ago, a paroxysm occurred, lasting from 20 to 30 seconds, which had all the signs of impending suffocation, and if it had continued a few moments longer he would have perished unless tracheotomy should have been performed. There is immobility of the vocal cords, which are closely approximated, leaving only a very narrow slit for respiration. Strangely enough, the voice is well preserved; although somewhat monotonous, it is strong and clear. The treatment is potassium iodide and strychnine hypodermically. The patient came to Dr. Spiller with the ordinary symptoms of tabes, with gastric crises, vesical disturbance, eye-disorder, tabetic ulcer of the foot, and then paroxysms of cough; that laryngeal spasm is now recognized as one of the symptoms of locomotor ataxia, and that the case is interesting in connection with the fact recently brought out that the parts of the body most used are liable to suffer most in this disease. Dr. Watson could not recall ever having seen a case in which the space for breathing between the cords was so small as in the patient. It looked as if there were a strong element of spasm in the case, as the arytenoids were so closely applied. He did not know what paralytic condition could cause such a picture as the case presented. Dr. Randall had not seen such a marked case among the many tabetic patients he had examined, and thought that spasm is likely to be present in this group.

EARLY RECOGNITION OF PARETIC DEMENTIA.—Dr. B. Sachs concludes (*New York Medical Journal*, Vol. lxviii, No. 2) that in the earlier stages of every form of paretic dementia the physical signs arrest attention. Chief among these are, in the order of their importance: (1) The stammering, tremulous speech; (2) the tremor of the facial muscles and of the tongue; (3) the pupillary symptoms; (4) the change in the individual's handwriting; (5) the exaggeration or the absence of the reflexes. The disturbance of speech is unquestionably one of the earliest symptoms, and is so characteristic that one is not infrequently tempted to make the diagnosis of progressive dementia if a patient who has shown some mental change has in addition that peculiar stammering utterance which makes the use of words of many syllables, or of sentences in which there is any alliteration, particularly difficult. Yet it occurs at times in persons whose mental deterioration is of distinctly alcoholic origin.

The tremor of the facial muscles, which occurs only in progressive dementia and in chronic alcoholism, is a symptom of the greatest value. If alcoholism can be excluded, it is unquestionably a grave symptom, and may well support the diagnosis of paretic dementia.

The pupillary symptoms have by many writers been placed first among the physical symptoms. In several patients of mine they have not been developed until long after the appearance of the characteristic speech disturbances and of the facial tremor. The typical Argyll Robertson pupil is common enough, and particularly in those forms associated with tabetic symptoms. The complete immobility of the pupils, both to light and during accommodation, is present in a large number of cases, and is often associated with inequality of the pupils and with the history of preceding ocular palsies, all of which occur more commonly in those who have been exposed to syphilitic contagion. The irregular contour of the pupil has been described as occurring in paretics. It is not dependent upon a preceding iritis, is more probably due to defective innervation, and is, by the way, often seen in persons with

constitutional syphilis and also in some young and healthy persons.

The changes in the handwriting are of special value, not only as illustrating the tremor of the fingers and of the hand, but as giving the first evidences of that mental dissolution which is most marked in acts which have been performed with the greatest skill. The dropping of letters from words that were written with ease and almost unconsciously, the omission of syllables, the running together of words that should be separated, and the entire failure to punctuate, may be the first signs pointing to serious mental defect. Too much importance should not be attached to the tremor alone, for in other diseases, and particularly in multiple sclerosis, very similar physical disturbance occurs.

The reflexes invite close attention, for, if absent, they may be part of the symptoms of a tabetic process with which progressive dementia is frequently associated. If exaggerated, great care should be taken not to formulate the diagnosis unless a purely neurasthenic condition can be safely excluded.

UNILATERAL ABSENCE OF THE CEREBELLUM.—Neuburger and Edinger report a case in which (*Berlin Klin. Woch.*, Jan. 24th, 1898) there was almost total absence of half the cerebellum without very obvious symptoms during life. A forty-six-year-old man had suffered for some years from obstipation. When first he came under care there were tendencies to periods of unconsciousness, bradycardia and neurasthenia. The unconscious attacks varied but became more and more frequent. There was during them some turning of the head to the left and left conjugate deviation. During the intervals between the attacks, the pulse varied between 12 and 16 beats per minute; then it would become less frequent and finally stop entirely. The attack would commence and the pulse would gradually reappear, increasing until, with return of consciousness, it was once more 12 or 16 beats. At the autopsy the thoracic and abdominal organs were found entirely normal. The right hemisphere of the cerebellum was almost entirely

absent; the left was normal. Both cerebral hemispheres were apparently normal. More careful investigation showed a small body, about the size of a hazel-nut, that represented the absent hemisphere. The rest of the posterior fossa of the skull was filled by a sac containing clear fluid. The right half of the vermiform process of the cerebellum shared in the hypoplasia; the right olive was absent; the right side of the pons, the right corpus geniculatum, and the right crus were all smaller than the corresponding portions on the left. Sections showed an absence of the corpus dentatum. The right vagus and acoustic nuclei were altered. The restiform body was very much diminished in size. The superficial fibers in the pons were almost entirely absent on the right side, proving their connection with the cerebellum.

NEUROSIS OF THE HEART.—Dr. R. D. Powell (*British Medical Journal*, March 26 to April 2, 1898) states that there is unquestionably a large, perhaps increasing, number of people who are morbidly conscious of their hearts action and of the function of their cardio-vascular system. The first type of cardiac-neuroses which he describes he designates cardio-vascular hyperaesthesia. The first degree of this condition, consisting of undue appreciation of the heart's action and the blood circulating through the vessels, is extremely common in nervous introspective people. The heart's action may be quite normal but it is liable from slight causes to become paroxysmally excited and accelerated. The pulse tension is variable.

The next degree is that in which the heart's action is really oppressed to a point varying from a mere vague anxiety to a positive discomfort and onward to the third degree, the acute suffering of angina. These persons may not be introspective, their attention is not concentrated upon their circulation, but is compelled thereto to actual discomfort or pain. It is from among the first two classes of cases not distinct but merging into one another here referred to that the cases of vaso-motor angina come. Shock, chill, emotion, dyspeptic distinction of nerve endings and other

causes, may so increase arterial resistance as to cause cardiac embarassment and anginal pains. Paroxysmal attacks of palpitation or tumulation action of the heart are not uncommon incidents in connection with especially the second degree of cardio-vascular neuroses described, the attacks being attributable to sudden vaso-motor relaxation or to vagus irritation from dyspeptic or gouty causes.

It is difficult to precisely formulate the harm done by amateur drug-taking for pain, sleeplessness and spasmodic suffering. It may be clinically summarized by saying that the controlling centers of the nervous system suffer chiefly, emotional disturbances are more easily excited, reflex agitation is less controlled and the cardio-vascular and thermic centers are diminished in tone. The little tablets so freely used have much to do with the increase of the neurotic disturbances of the heart and vessels, which is unquestionably a medical feature of the present generation. A neuralgia which in former days necessitated the called-for nerve rest is now promptly subdued by a dose and the patient is enabled thus to take a further step in nervous fatigue without direct suffering. Neurotic persons as a class take too little food, are always hurried over the meals and in the details of life; they eat too fast, and have a tendency to exceed in nerve stimulants—tea, tobacco, alcohol, and certain drugs—or they find their excitement in social entertainments.

It is in all cases essential to make a thorough examination of the heart, and to come to an absolute diagnosis, for the treatment rests largely on moral grounds. If the patient can be truthfully assured that there is no organic lesion a most important step is taken in the treatment. The next point is to investigate his mode of life and correct it where necessary. The removal of the morning cup of strong tea, the proper relief of the bowels, the absence of hurry previous to and during meals, together with a few sensible directions with regard to the dietary, will do much to render digestion more complete and quiet the nervous system. Some must be induced to give up the philanthropic and other duties with which their nervous energies

impel them to fill all their time outside hard business hours.

Drugs are, of course, often required in the treatment of functional disturbances of the heart, purgatives or laxatives, and particularly an occasional mercurial to lower arterial tension and to remove irritating materials—sometimes nerve sedatives of the bromide order, often hematinics, especially arsenic or iron, as tonics to the nervous system and blood restorers. Strychnine is often very badly borne by patients of the neurotic class, except perhaps for short periods, and where a cardiac tonic is required, caffeine is more appropriate. In cases of venous plethora a course of salines is sometimes necessary and in gouty cases suitable remedies. Many of the troubles and some of the catastrophes of cardiac disease are attributable to functional derangement. Numberless people die of functional disturbance of a diseased heart, few, or none, die of functional disturbance of a sound heart. Hence the importance of a definite diagnosis in every case as to which category it belongs.

In a large proportion of cases angina pectoris is an entirely functional disorder, the main feature of which is sudden increase of blood pressure and a correspondingly sudden call upon cardiac effort; it may be on the systemic, it may be on the pulmonary side of the circulation that the strain arises. The causes of this arterial spasm are almost all within our scope of remedial treatment, and the neurosis that favors its occurrence is subject to considerable modification and control. In all these cases, while it is the heart that suffers the angina, the conditions that originate that suffering are outside the heart. There is no essential difference save in degree, and not always in degree, between cases of angina in which the heart is sound and those in which it is unsound, but there is every difference in the gravity of prognosis and the urgency of treatment.

The pain, which is to a certain extent the measure of the strain upon the heart, is to be attacked by remedies which relax arterial spasm. Amyl nitrite, nitro-glycerin, and the nitrites generally, but especially nitro-glycerin (one minim of the one-per-cent. solution) may be given at intervals of five minutes for two, three, five or more doses, and

at the same time that the antispasmodic is given an appropriate cardiac stimulant is required. In the more purely neurotic cases it is most desirable to avoid alcohol. There is no better stimulant than slowly sipped hot water. Dr. Brunton has pointed out that sipping is a physiological stimulant to the heart, and hot drinks tend to relax arterial spasm. A prescription for a carminative draught, including ammonia, chloric ether, and valerian or cardamom, is valuable to be taken in several sips. Warmth to the surface, and especially to the extremities, are the further requisites.

The second stage of these cardio-vascular attacks is one of reaction and excitement, to be followed by fatigue. Often by the time the medical observer arrives the cardiac pressure has already been relieved through the depressor nerve of the heart excited by intraventricular pressure bringing about relaxation of arterial spasm. With a few hours' rest in bed the patient may again be fit for the duties of life, although usually a sense of lassitude and fatigue remain for a few days. It is now that the cause of the attack must be sought out, the conditions of the heart carefully ascertained, and the daily life, diet, surroundings and functions of the patient must be investigated and corrected when in error.

If there be no heart disease present, the patient must be thoroughly reassured on that point, but if heart lesion be present, much more attention must be given to the after-treatment. The gravest cases are those in which there is enlargement of the heart without, or not accounted for by, valvular defect. The fatty heart, the syphilitic heart and the renal heart, may be mentioned in this category. Aortic stenosis and aortic regurgitation come next. On all these cardiac conditions anginal attacks may supervene, having precisely the same mechanism as the attack unattended with cardiac disease. It is most important to bear this in mind, for the treatment is in precisely the same lines, only it must be more urgently pursued.

The initial treatment may be started with nitrite of amyl inhalation, and the patient should always have the drug at hand. But the attack is commonly attended with

such acute heart failure that the clinical features of high pressure pulse and laboring heart may be immediately lost. The subcutaneous injection of pure ether, to which a minim of nitro-glycerin solution may be added, if not already otherwise taken, is the best treatment in severe cases if caught at the right moment. The sense of prostration is greater and more defined in these cases. Alcoholic stimulants, so much to be avoided in pure vaso-motor cases, are in these imperative. A full dose of brandy should be given in some hot drink. In those cases, and they are many, in which flatulent distention forms a marked feature of the attack, if it be not concerned in producing it, a draught of ether, ammonia, soda, cardamom and spirits of chloroform is of much service at the earliest stage.

The heart is left in an exhausted and fatigued condition after the attack, and there is a decided tendency to a series of several attacks. For this a mixture of strychnine or caffeine may be prescribed with digitalis, so that 15 or 20 minims of liquor strychninæ and 20 or 30 or 40 of tincture of digitalis are given in twenty-four hours, and the strychnine may be given subcutaneously in, of course, equivalent doses, or the caffeine in the form of salicylate. It is probable that digitalis and strychnine influence the heart muscles before that of the vessels, but if the pulse becomes tightened, as it may be in exceptional cases, the digitalis must be lessened or its effect on the vessels moderated by the addition of half a minim or one minim doses of nitro-glycerin to the prescription. Oxygen inhalation is a powerful restorative to the fatigued heart, and it may be given for five or ten minutes every hour, or two or three hours as may be required.

These cases often come with a history of a recent attack and it is necessary to consider what form of angina it has been, how to avert fresh seizures and how to repair, if it may be, the failing heart which renders each attack so dangerous. The presence or absence of heart disease must be rigorously ascertained:

(1) The soundness or otherwise of valve function.

(2) The presence or absence of enlargement, dilatation, or hypertrophy of the organ.

There has as yet been found no direct means of treating simple tachycardia successfully. The digitalis class of drugs are useless in this, as in almost all cardiac neuroses, except, and the exception is important, in the treatment of the heart fatigue which sooner or later ensues as consequence of the functional strain upon the organ. Tachycardia in its various grades is, however, often but a symptom, a prominent expression, of a neuropathic state which requires to be approached for treatment from many sides.

Many people, especially women, suffer from persistent hurry of the heart, coming quite within the range of the lower degree of tachycardia and there is nothing to distinguish simple tachycardia from that which is the constant symptom of exophthalmic goitre, the rhythm and quality of pulse being precisely the same.

In exophthalmic goitre, the physician has to deliver himself of the somewhat magisterial sentence "imprisonment for six months and under surveillance for from two to five years." The rest for the first six months should be absolute on bed, sofa, or on a couch in the open air, with the utmost avoidance of all excitement and mental fatigue. The patient can then be promoted to bath-chair exercise, quiet walking and driving, or more scientifically graduated exercises, and in the course of time recovers. The general well-being of the patient can be maintained, and the more distressing local and general symptoms relieved or removed by cold applications to the throat, sedatives of the bromide and valerian order, arsenical and sometimes iron tonics; digitalis and the like drugs may be given on the appearance of heart fatigue, indicated by the signs of dilatation and a pulse irregular in time and force. In the treatment of the tachycardia, apart from heart-strain, digitalis is of little value. The use of thymus extract is of some value in diminishing the rapidity of the pulse; the galvanic current has been found useful in some cases.

One form of bradycardia is that which sometimes follows upon the rapid heart of exophthalmic goitre and it is

very commonly associated with well-marked myxedema. In chronic bradycardia, a condition that tends to remain permanent, and does not necessarily shorten life, an occasional twenty-four hours' rest in bed should be enjoined and for mental work the recumbent posture should be preferred. In cases of a more temporary kind the combination of strychnine with an alkali or potassium iodide (the two drugs being kept in separate bottles, and only mixed at the time of taking) is a very useful one. Caffeine is also very useful, especially where the urine is scanty. A five minutes' whiff of oxygen three or four times in the twenty-four hours is a valuable cardiac stimulant. In cases of myxedema thyroid extract will be given, but it is not wise to push it to the production of any excitement of circulation.

SEXUAL ORIGIN OF NEURASTHENIA AND PSYCHO-NEUROSIS.—Sigmund Freud announces that every case of neurasthenia has some abnormal occurrence or occurrences in the sexual life of the patient at the present time or since puberty. He scouts the idea that mental overwork or excess of household cares can alone induce neurasthenia, although any depressing factor may favor its development, and insists that absorbing occupations, especially intellectual, protect against the evolution of neurasthenic affections. He divides them into: 1. Neurasthenia proper, which he claims can always be traced to excessive masturbation, unnatural sexual intercourse, etc. 2. "Anxiety neurasthenia," distinguished by dread, restlessness, agoraphobia, vertigo in walking, sleeplessness, etc.; this form he states can also invariably be traced to sexual influences in the nature of unsatisfied impulses, coitus interruptus, abstinence with inflamed desires, etc. He protests against the prevailing hypocrisy in regard to sexual matters, and urges the physician to assume an abnormal sexual life as his guiding star in the etiology of neurasthenia, as this alone will help him to treat it rationally, after winning his patient's confidence. In cases absolutely impossible to trace to any abnormal sexual occurrences, he decides that the affection is not neurasthenia, and by eliminating this conception, he has

discovered unsuspected local affections, in one instance a latent suppuration in one of the accessory nasal cavities, which had only produced neurasthenic symptoms, entirely cured by an operation.—*The Medical Times.*

NERVOUS DYSMENORRHŒA.—Dr. v. Oswiecimski (*Klinisch-therapeutische Wochenschrift*, June, 1898) recognizes these three forms of dysmenorrhœa: 1. The inflammatory, which is due to the inflammation of the uterus itself, its adnexa, or the neighboring organs. 2. The nervous, caused by the hyperæsthesia of the uterine mucous membrane. 3. The mechanical, dependent upon some obstruction which prevents the flow of blood to and from the uterus. Under this category he mentions hypoplasia uteri, stenosis of the cervix, anteflexion of the uterus, and closure of the internal os.—*Medical Record.*

[Failure of due innervation has something to do with all forms of dysmenorrhœa.—ED.]

RESECTION OF THE SYMPATHETIC IN GRAVES' DISEASE.—Messrs. Combemate and Gaudier, of Lille, showed a patient before the Paris Academy of Medicine at the meeting of April 19th. The patient was the subject of exophthalmic goitre, and she had been operated on by resection of the sympathetic. The results were as follows: first, a most important diminution of the exophthalmos; secondly, lowering of the heart beats from 200 to 100 in the course of a week, while at the same time the painful pulsation in the precordium disappeared; and thirdly, there was no marked effect on the goitre itself. Messrs. Combemate and Gaudier concluded from their observations that in cases of exophthalmic goitre, when the tachycardia is intense and continous, when this is the only symptom, or when there is also exophthalmos, there is always the risk of dangerous symptoms supervening. In such cases section of the cervical sympathetic, which acts most probably by preventing hypersecretion of the thyroid gland, is the best operation to do. —*Medical Record.*

ERYTHROMELALGIA.—Dr. Rost, Prof. Oswald's assistant at the Augusta Hospital, Berlin, recently presented a

case of this rare disease at the *Verein fur Innere Medicin.* As he has been able to find only some 40 cases of it altogether in the literature, each case is of special interest. It aroused a good deal of attention and was carefully observed by most of those present. The opinion expressed by Dr. Rost, which seems to be that generally held by the internists, is that of Dehio: He considers it an independent disease and due to a state of irritation of the cells of the anterior horns at certain levels in the cord. Sometime ago a series of articles from Vienna claimed that it was a symptom-complex with intimate relations with such other affections as Raynaud's disease and the neurotic edemas. This view does not seem to meet with much favor in Germany and its independent character as a disease with probably a special functional disturbance at least of definite anatomical elements, is conceded.—*Journal American Medical Association.*

THE PARANOIC.—She was a lunatic; but she could discern enough to retain some of the technical words and ways of the doctors who inspected the asylum wards each morning.

She had learned about "thermometer, knee-jerk, prescription," etc., and she made mischievous use of these terms, often to the discomfiture of the pompous physicians.

Once a visitor passed her by and asked: "What were you sent here for, aunty?"

"Case I said I had 'lectricity in me. De nex' mornin' arter I comes, de doctor, he comes 'long and says, 'Stick out yo' tongue; den he writes on de prescription. He comes frough agin en says: 'Stick out yo' tongue;' so I quits er eatin' toof-picks fur er whole munt so dey wouldn't be any sticks in my tongue. But den I picks my toofs wid pins, en I swallers so many dat I gets right pinoculated. So dat doctor, smarty, comes frough agin en hauls off en hits me on de knee* whar one ob dem pins am lodge; en it makes him hop erbout en say: 'You kin go; you's got 'lectricity in yer."

*Examination for patellar reflex.

And the visitor sighed and wished he knew more about lunacy.—Gabriel C. Boudousquie, M. D., in *Practical Medicine.*

TIMELY CAUTION IN RHINOLOGY.—At the meeting of the Denver and Arapahoe Medical Society, May 24th, Dr. Robert Levy read the paper of the evening entitled, "Serious Consequences Following Intranasal Operations." He reported two cases in which he had seen serious results follow intranasal operations. The first case was a young man who had a spur and a deviated septum, upon whom he operated with all precautions but who failed to return for late cleansing. When he was called to see the man he found him with a high temperature, and paralyzed on the right side. He developed active delirium, coma and died. At the post mortem the left posterior cerebral artery was diseased and filled with a thrombus and the entire left optic thalamus and posterior part of the internal capsule was broken down and softened. With this he had a fresh endocarditis and a universal pericarditis.

The second case was that of a young woman with exostoses in both nares, who after a simple operation for removal developed cerebral meningitis and died. He protested against unnecessary, injudicious and severe intranasal measures. He divided the accidents following such operations into infectious, nervous and mechanical, and he cited from an extensive bibliography, twenty-four cases where serious results followed intranasal operations.

He spoke of the great need of thorough antisepsis of the vestibule and thought the use of the post-nasal syringe was better than an atomizer.

[If our rhinological friends would imitate Levy and report their fatalities from the precipitate removal of "nasal spurs" and halt timely to consider, this all too precipitate procedure would become very infrequent. Our friend would be spurred on to it less precipitately for slight causes. There are few non-deviated septi and many spurs that give no trouble after a thorough constitutional neurotherapy, as we have proven in hundreds of instances. It is dangerous for a

neuropath with a spur or deviated septum to strike some rhinologists before he has been put in tone.—ED.]

SYSTEMATIC EXERCISE THERAPY FOR TABES.—Jacob (*Deutsche Medicinische Wochenschrift*, Feb. 24th, March 3 and 20, 1898) reports from Lyden's clinic quite extensive experiments in the line of systematic exercise therapy for tabes. In reviewing the treatment he mentions that local irritating applications, as cauterizations and vesicants are no longer used; that the bath treatment, while not accomplishing what was formerly hoped, still merits consideration in that it improves the general condition and feelings of the patient.

Likewise, electricity, which by some in the last few years has been abandoned, deserves recognition, in that it relieves the parasthesias and girdle sensations, and exerts its special benefit in stimulation of the peripheral nerves. The suspension treatment and its modifications have nearly ceased to be used, since in the main favorable results have not been attained and some cases have been made worse by its application.

The corset treatment so far has not attained any considerable advance, but modification of the principles are still being used experimentally. The medicinal treatment consists chiefly of strychnia, arsenic, silver nitrate, potassium iodide, bromides, anti-neuralgics and tonics. It is also thought that essential improvement of the spinal symptoms through anti-leuitic treatment is uncertain.

The results of animal extracts in form of brain and glandular extracts as used by several scientific observers have been limited.

Hygienic and dietetic measures are of special value. So far no specific has been found to repair the extensive lesions of the cord, and it should be the care of the physician to use those measures which will as much as possible relieve the special symptoms, the most important of which are the ataxic disturbances to relieve, and for which, treatment promises the most satisfactory results.

He believes in the Leyden-Goldscheider theory, viz:

that the ataxia is sensory, due to disease of the sensory neurons entering the cord through the posterior roots. He believes co-ordinate movements consist of two kinds, simple synergies, innervated, form the spinal cord, and complex synergies under control of psychical processes. Upon the principle that the ataxia is sensory, and that impaired sensation of the limbs may be supplemented by other sensations, as of sight, he rests the treatment of exercise therapy. By its use, the sensation of anæsthetic areas may be partially if not completely restored, and with the aid of other senses, especially of sight, the uncertainty of motion in the ataxic limbs may be very much if not completely relieved.

The exercise must be systematically carried out, in order to accomplish the desired results. He says, in describing his application of the method, that he seeks in a systematic manner to restore to the patient certainty of movement under control of his sense of sight. The two chief points to consider in the treatment are: Correct exercise, which in some cases may be made easier by special apparatus and detailed instruction to the patient as to the manner of carrying out the treatment, and avoidance of overexercise. The exercises of the limbs consist essentially of repeated purposeful actions of the ataxic limbs which become easier and easier as they are again and again repeated, re-establishing confidence of the patient in his ability to perform customary acts.

Sitting down and rising from a chair repeatedly, with as little support as possible, placing feet in various definite positions at will, standing with feet together, walking accurately, climbing steps, etc. All this should be carried out under the strict eye of one who understands the treatment and its details, taking care to avoid tiring patient.

It requires weeks and months, and, in general, it may be stated that the slower and more systematic the treatment, the more satisfactory and permanent are the results.

In reporting results of his cases, he states that all were improved in two to six months, some who used canes or crutches were able to go well without any support. He

firmly believes that the exercise treatment will relieve and in some cases cure the ataxia of many tabetics, restoring their activity and increasing their enjoyment of life, and, though it may in no way directly influence the lesions in cord, it may tend to check its advance.—Excerpt by Charles Gilbert Chaddock, in *St. Louis Medical Gazette*.

DOUBLE ATHETOSIS OF CENTRAL TYPE.—Dr. Given Campbell of St. Louis has reported to the St. Louis Medical Society the following patient, a male, aged 2½ years, presenting the following history: His parents, healthy, Germans; two other children, girls, aged 14 and 16 years. No nervous disease in family. Patient born at seven months; difficult labor; since birth has been delicate; no paralysis, no convulsive seizures; now fairly well nourished; exhibits slight signs of rickets. From time of birth parents noticed athetoid movements of neck muscles and of hand and arms; a slight gradual improvement has continued up to the present time; mother has noticed athetoid movements of face for the last two months. Child seems fairly intelligent, says a few words and remembers strangers. Movements chiefly in upper limbs. Viscera normal; exaggerated knee-jerk and contracture of flexors of knee. Flexors generally mostly involved. Has occasional retarded urination and is subject to profuse cold sweats. Patient was raised on cow's milk.

NEUROTHERAPY.

ARSENAURO AND DIABETES.—Dr. H. Eaton of Brooklyn, N. Y., claims in April, 1897, to have cured a case of diabetes mellitus with this remedy. Following is an extract from the record in *International Journal of Surgery* for May of the present year. At the present time the patient continues well:

"With the idea of effecting an alterative systemic change as an initial step, I at once put the patient on 5 drop doses, *ter in die*, of mercauro, continuing with them for ten days. I made no change in the diet. At the expiration of ten days I stopped the mercauro and put the patient

on arsenauro, never from beginning to end, exceeding the dose of 5 drops three times daily. Before the conclusion of one month there was a gradual reduction in the annoying symptoms. There was a very fair increase in the patient's strength, a diminution of the bothersome itching, less nocturnal voiding of urine, and in short, such a general degree of improvement that I was not surprised when the next analysis showed a reduction of more than one per cent. in the sugar. I kept him on the one remedy, arsenauro, for four months, and at the end of that period had the pleasure of determining the complete absence of glucose from his urine."

DIET TREATMENT OF HEADACHE, EPILEPSY AND MENTAL DEPRESSION.—Alexander Haig, M. A., M. D., Oxon, F. R. C. P., in *Brain*, summer number, says: "Those headaches associated with an excess of uric acid in the urine are treated by excluding from the diet all fishes, meat, eggs, tea, coffee and cocoa, and giving milk, cheese, pulses, cereal foods and fruit. From the change of diet the nutrition of the patient is lowered, so that the stored reserves of uric acid flood the blood, and, besides, many vegetable foods introduce more alkali and less acid into the body than do the animal foods interdicted, and thus increase the alkalinity of the blood, and flood it with uric acid. For these reasons an increase of headache occurs in the beginning of the treatment. To tide the patient over the period of excessive headache, a mixture of bromide of ammonium and salicylate of ammonium is given. However, this plan of diet is to be persevered in, for the increase of headache, in the beginning of the treatment, when the first rush of uric acid occurs, is to be regarded rather as a favorable than an unfavorable sign.

"In mental depression the same diet is used, and, to conserve the patient's strength and energy, he is put to bed with most happy results.

"In the treatment of epilepsy success was not so well marked; but a thorough trial of treatment is insisted upon before the plan is abandoned. Here, too, an increase in the

number of convulsions may occur in the commencement, which, however, is not to be regarded as unfavorable."

ABOUT ERGOT.—For some years we followed the lead of Podwissotsky and assayed ergot extracts for sclerotic or ergotinic acid, as most manufacturers do to-day. We now know as the result of our own experiments upon animals that ergotinic or sclerotic acid is not only not the active principle of ergot, but that it is harmful when injected because it depresses the nerve centers and exerts no hemostatic influence. We have also found that the determination of resin in Cannabis Indica, and extractive in Digitalis, is absolutely useless in so far as it serves as an indication of the activity of these drugs.—*Therapeutic Notes.*

EXERCISE IN EXOPHTHALMIC GOITRE.—Dr. Henry Waldo Coe, of Portland, Oregon, in a paper read before the Nebraska State Medical Society, Omaha, June 14-16, says: "In support of my claim that patients suffering from tachycardia and the early stages of exophthalmic goitre may be brought toward a higher degree of health, my note book shows numerous examples, out of which I wish to relate the following case:

"H., male, aged 56, had suffered from some heart affection for 20 years. For the last 10 years, on account of dyspnœa and other distressing symptoms, he had been in the habit of carrying in his pocket a bottle of tincture of digitalis, and taking therefrom a few drops to a dram at a dose as his condition would seem to indicate. * * * Exophthalmos was present, and the left half of the thyroid was somewhat enlarged. Tachycardia was a prominent symptom. The rate of the pulse at the time I first saw him was difficult to make out on account of its rapidity, intermittence, irregularity and weakness, although I have no doubt but the opinion of the physician preceding me in the case, that it was in the neighborhood of 200 beats per minute, was correct. Long continued functional derangement of the heart had induced organic change in that organ, with enormous dilation and valvular leakage without hypertrophy, and

when the patient presented himself to me he was suffering from general anasarca of a marked degree.

"The treatment included the Schott method of baths and resistance movements, mild at first, with rest in bed. In bringing a patient up to a state of tolerance in this treatment I may say that he needs very close watching during the early stages, or unfortunate results may follow. The thyroid had local treatment, and the general state of nervous excitability was appropriately met by systematic care, in which massage and electricity were cautiously but persistently employed. It was sometime before he could walk across the floor without panting, while he was for two or three weeks obliged to sit propped up in bed while attempting to sleep at night. The plan of treatment occupied many weeks, and one feature made prominent was to try to convince the patient that he had petted his heart entirely too much; that his heart rested during the twenty-four hours as much as any other useful muscle, and that it should also do its full share of work. The result of the treatment was that ten weeks after coming to the Sanitarium he was daily walking down town, a distance of a mile, to a bicycle establishment, having been taught to use the wheel while under my care, where he would go out upon the street and ride for an hour, and then walk up a gentle ascent, reaching his room again, breathing quite naturally. After his day's exercise he would lie flat upon his back at night and sleep as well as any one could do, and since leaving the sanitarium, some months ago, he has been in excellent health, and this too, without the use of any drug treatment of his heart. He no longer suffers from dropsy, takes plenty of exercise, and is actively engaged in the pursuits of business."—*Western Medical Review.*

THE DEVELOPMENT OF SERUM THERAPY.—An entertaining and flattering record of medical progress. The *Bulletin of Pharmacy* contains the interesting and instructive record of this important subject in medical advance. Its perusal ought to convince any one that to no one man is

due the honor of exclusive discovery, though to Jenner and Pasteur belong immortal honor of priority in the premises. Natural immunity, the fact that certain individuals or races are less susceptible than others to certain diseases was noted by the earliest writers on medicine. So it has long been known that in some of the infectious diseases one attack of the disease confers more or less immunity against subsequent attacks—an acquired immunity.

Artificially acquired immunity dates from the discovery of Jenner (1766) that the lymph taken from the vesicles of cow pox would protect the vaccinated individual from smallpox.

Pasteur in 1880 began the publication of a series of brilliant experiments on the production of artificial immunity. He found that if his microbes were weakened by age, or heat, or exposure to the atmosphere, animals inoculated with these weakened cultures would have a mild attack of the disease and were thereafter immune to the disease in question even after inoculation with the most virulent cultures.

He perfected his methods of attenuating his microbes and succeeded in immunizing animals against several of the infectious diseases.

Pasteur clearly saw the immense significance of the work and made the prediction: "It is possible for man to eradicate every contagious disease from off the face of the earth."

The epoch making discoveries of Pasteur attracted many workers in this field and justified the statement of one of his pupils, "There are two periods in the history of medicine, the one before, the other after, Pasteur."

Pasteur worked with the germs themselves. The next discovery of importance was that the toxic products of the germs, the filtered cultures from which all the germs were removed, could produce immunity. This discovery was made piecemeal. The first satisfactory demonstration of it was given by Salmon and Smith[2] in 1886. These workers succeeded in immunizing pigeons against the germs of hog

cholera by previous injections of sterilized cultures obtained from these germs.

Similar results were reported by Roux[3] in 1888 with anthrax and smyptomatic anthrax. The first published results on immunization in diptheria were those of Löeffler.[4] He showed that in May, 1888, he had inoculated a guinea pig with diphtheria. The animal sickened, but recovered after three weeks. It was then inoculated a number of times with virulent cultures, but showed itself entirely immune.

C. Fraenkel (*Berlin Klin. Woch.*, Dec. 3, 1890) published his results on the immunization of animals against diphtheria. He showed that there were several ways in which this could be accomplished.

On the following day (*Deutsch Med. Woch.*, Dec. 4, 1890) Behring and Kitasato published their results on the immunization against diphtheria and tetanus.

They succeeded in immunizing animals against tetanus and diphtheria by the injection of the filtered cultures from these germs. In 1891 the Klemperer Brothers[5] reported similar results with pneumonia. Meantime a number of investigators in various parts of the world were busy with another part of the problem.

"As early as 1872, Lewis and Cunningham[6] demonstrated the fact that bacteria injected into the circulation rapidly disappear.

In 1874, Traube and Gschiedlèn[7] found that arterial blood taken under antiseptic precautions from a rabbit into the jugular vein of which 1½ Cc. of a fluid rich in putrefactive germs had been injected forty-eight hours previously, failed to undergo decomposition for months. These investigators attributed the germicidal properties of the blood to its ozonized oxygen. Similar results were obtained by Fodor[3] and by Wysokowicz.[9] The latter accounted for the disappearance of the germs, not by supposing that they were destroyed by the blood, but that they found lodgment in the capillaries.

"The first experiments made with the extra-vascular blood were conducted by Grohmann[10] under the direction of

A. Schmidt in his researches upon the cause of coagulation. It was found that anthrax bacilli, after being kept in plasma, were less virulent, as was demonstrated by their effect upon rabbits. Grohmann supposed that in some way the bacteria were influenced by the process of coagulation.

"In 1877, Fodor[11] made a second contribution to the subject and in this he combated the retention theory of Wysokowicz. One minute after the injection of 1 Cc. of anthrax culture into the jugular vein in eight samples of blood, Fodor found only one colony of the bacillus. Then he took the blood from the heart with a sterilized pipette and added anthrax bacilli to it. This was kept at 38° C., and plates made from time to time showed a rapid diminution in the number of germs; after a time, when the blood had lost its germicidal properties, the number of germs began to increase."

"In 1888, Nuttall[12] showed that defibrinated blood had this germicidal power. Since then Nissen,[13] Behring,[14] Bushner,[15] Christmas,[16] Hankin,[17] Bitter,[18] and others have worked on this question. All of the observers find that the blood, within or without the body, has germicidal powers.

"These experiments demonstrated the fact that the body had the power to kill at least some bacteria, but gave us little if any insight into how it was done."

IMMUNITY TO POISONS.

That certain animals possessed more or less immunity to certain poisons was a matter of common knowledge, the carniverous animals, as the wolf and vulture thriving on putrid, toxic flesh. So it was known that many snakes and a few mammals, as the hedgehog, swine and the ichneumon, were very resistant to snake poison.

In 1887, Sewall[19] reported that he had immunized pigeons against the poison of the rattlesnake. He says: "This work was undertaken with the hope that it might form a worthy contribution to the theory of prophylaxis. I have assumed an analogy between the venom of poisonous serpents and the ptomaines produced under the influence of bacterial organism." These experiments of Sewall's are in

so far as we know the first attempt to immunize animals against poison.

An all important discovery was that the immunity of one animal could be borrowed and transferred to another animal. The idea of the transfusion of the blood of healthy individuals or animals into persons weakened by disease or age is centuries old. King, physician to King Charles, in 1665 practised transfusion from the veins of one person into that of another. Denis in France, who died in 1704, transfused the blood of a lamb into a weak patient. This operation was in common use until within the last few years. The first record we find of the use of the blood of an immunized animal for the protection of other animals is in 1887. Foa and Bonome[20] published their results. They rendered animals immune to the proteus vulgaris, the diplococcus of pneumonia, and the bacillus of chicken cholera, by treating them with sterilized cultures of the germs, and discovered that the blood drawn from the heart, or an infusion of the tissues of rabbits dead from proteus infection, injected intravenously into another rabbit, made this animal immune to virulent cultures of the proteus germs.

Hericourt and Richet,[21] 1888, report treating dogs with tubercle germs, and then transferring the blood from these dogs into other animals to cure and prevent disease.

So they injected cultures of staphylococcus pyosepticus into dogs, taking the blood from these dogs and injecting it into rabbits they found that the latter animals would then resist infection with the staphylococcus.

In 1890 Ogata and Jasuhara,[22] working in the Hygienic Institution of Tokio, showed that mice inoculated with a lethal dose of anthrax germs could be saved if at the same time blood from an immune animal was injected subcutaneously.

Later in the year (1890) Behring and Kitasato[23] showed "that the blood of an animal which has an acquired immunity against tetanus or diphtheria, when added to a virulent culture of one or the other of these bacilli, neutralizes the pathogenic power of such cultures, as shown by

inoculation into susceptible animals. And also that cultures from which the bacilli have been removed by filtration, and which kill susceptible animals in very small amounts, have their toxic potency destroyed by adding to them the blood of an immune animal.

In the experiments cited of Fraenkel, Behring and Kitasato, it was clearly shown that the blood of immunized animals when injected into susceptible animals protected them from subsequent infection with virulent germs. Behring and Kitasato went further and demonstrated that the immunized blood would protect animals not only against living germs but also against filtered cultures or toxins, which were very fatal to untreated animals. They showed that their protective inoculations produced an immunity which in mice lasted for forty or fifty days, after which it was gradually lost.

The next step forward was made by Kitasato[24] in 1891, in his further research on tetanus. He discovered that the blood serum of animals immunized to tetanus had not only prophylactic but also curative properties. He demonstrated that mice inoculated with tetanus germs could be cured by an injection of serum, even *after* the tetanic symptoms had appeared.

This, the last in the long list of discoveries made by many workers along this line, made serum therapy possible. From this time on the question was one of perfection of methods. The best animals to use, methods for so increasing the immunizing power of the blood that a small quantity would suffice for curative purposes, methods for determining the strength of the immunizing serum, how to preserve and administer it.

Many investigators assisted in this work. Erlich[25] in his work on the vegetable poisons, Abrin and Ricin, showed that by beginning with very small doses and gradually increasing them, the immunizing power of the blood could be increased almost indefinitely. His treated animals would withstand hundreds of times the fatal dose of the poison. Behring contributed largely to the work, and devised a

method for measuring the immunizing strength of the antitoxic serum.

Roux and Yersin[26] showed that different cultures of diphtheria germs varied enormously in virulence.

Aronson[27] and others devised means for increasing the virulence and toxicity of the germs. Aronson[28] after experimenting with many species of animals, could show that the horse was the most suitable for the production of antitoxic serum.

The possibilities of the serum therapy were apparent to every worker. Roux[29] in 1894, when announcing the successful results of the treatment of children with his antitoxin, says "since the year 1891 we have carried on experiments on the treatment of diphtheria with antitoxic serum."

Behring and Wernicke[30] (in 1892) published a paper upon the immunizing and healing of experimental animals with diphtheria. They produced an antitoxin and used this in treating guinea-pigs, both for immunizing these animals and for curing them after they have been infected with the diphtheria germ, or with its poison. They say the aim of their experiments "is to produce the material in such quantity and potency that diphtheria in human beings can be treated therewith." Behring, in his History of Diphtheria, 1893, discussed the possibility ot treating children with diphtheria antitoxin, pointing out that it is only a question of making the material more potent until the work can be begun. He shows that of the material produced up to that time about 50 Cc. would have to be given to a child of 20 kilogramme weight, supposing that diphtheria in children is of about the same intensity as in guinea-pigs.

In November, 1892, in the Berlin Medical Society, Aronson[31] reported on the immunization of human beings against diphtheria, and in January, 1893,[32] he further reported that he had succeeded for the first time in so increasing the immunizing power of the serum that protective inoculations of children exposed to diphtheria was possible in practice.

In March, 1894, Aronson's serum began to be used in

the Children's Hospital in Berlin. In February, 1894, Roux's serum began to be used in one of the hospitals of Paris, his preliminary report on the clinical results being made in May, 1894.

In September, 1894, in Buda Pesth, at the International Congress of Hygiene, papers were read by Behring and by Roux on the treatment of human diphtheria with antitoxin. These papers with their clinical reports of the value of the treatment at once aroused world-wide attention.

As so often happens the persons who presented the results were popularly supposed to be the sole discoverers. On the contrary antitoxin was not the discovery of any one man or set of men, but the cumulative result of the work of many investigators. The papers cited herein are but a few of the hundreds that bear on this question.

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16 Christmas: Annales de l'Institut Pasteur, t. v.

17 Hankin: Centralblatt f. Bakteriologie, B. 9.

18 Bitter: Zeitschrift f. Hygiene, B. 12.

19 Sewell: Jour. Physiology, vol. viii., 1887, p. 203.

20 Foa and Bonome: Zeits f. Hygiene, 5 415.

21 Haricourt and Richet: Abstract in Deutsch Med. Ztg., 1888, p. 1141.

22 Ogata and Jasuhara: Ueber die Einflusse einiger Thierblutarten auf Milzbrandbacillen. Centralbl. für Bakteriol., Bd. ix, p. 25.

23 Behring and Kitasato: Ueber das Zustandekommen der Diptheriemmunität und der Tetanus-immuniät bei Thieren. Deutsche Med. Wchschr., 1890, No. 49.

24 Kitasato: Experimentelle Untersuchungen über das Tetausgift Zeitschr. f. Hygiene, 1891.

25 Ehrlich: Experimentelle Untersuchungen über Immuniät. Deutsch. Med. Wchschr., 1891, No. 32; Ibid, No. 44.

26 Roux and Yersin: Annales de l'Institut Pasteur, 1890.

27 Aronson: Berlin Klin. Woch., 1894, Nos. 18 and 19.

28 Aronson: Berlin Klin. Woch., 1894, Nov.

29 Roux: Annales de l'Institut Pasteur, 1894.

30 Behring and Wernike: Zeitschr. f. Hygiene, 1892.

31 Aronson: Berlin Klin. Woch., 1893, p. 100.

32 Aronson: Berlin Klin. Woch., 1893, p. 215.

THE PHYSIOLOGICAL EFFECTS OF OVARIAN JUICE.—Ferré and Bestion make a report in the Therapeutic Gazette of the effect of a glycerine and water extract of ovary, and find it to possess distinct physiological influence in males and females, and they find that males cannot stand the doses well borne by females. If a large dose be given to a male he becomes intoxicated and dies, and a female requires double this dose to produce death. The symptoms shown by the male consist in progressive hypothermia, the production of sloughs at the point of injection, excitement of the genital apparatus, with erections and ejaculation of semen, and finally tremors and paralysis. Hematuria may develop. They found tubular nephritis, and in the paralyzed animals congestion of the spinal cords, particularly in the area of the spinal center in the lower dorsal and lumbar region. There were also well advanced lesions in the anterior cornua of the spinal cord. Ferré and Bestion conclude that the juice has a distinct effect, and that the partial immunity of females to this effect is due to the fact that they are accustomed to the ovarian juice in that doses similar to those which cause death in the male will do so in females below puberty who are not accustomed to ovarian activity. They believe that ovarian gland should be cau-

tiously given to women who have passed the climacteric for these reasons.

NEURO-PATHOLOGY.

NERVE CONTROL AND TUMORS.—Dr. Bosanquet (*Lancet*, Jan. 29, 1898) believes that tumor formation may be ascribed to the breaking loose of cells from the control of the nervous system. The existence of trophic centers shows that glandular activity and growth are under control of the central nervous system. Should this control be lost excessive growth in place of atrophy may result. Thus repeating pathologically the operation of the law of economy of growth pointed out by Aristotle, which underlies many of the conditions of hypertrophy and arrested development that occur in degenerates.

EDITORIAL.

[*All Unsigned Editorials are Written by the Editor.*]

The Patent on Antitoxin.—The announcement that Professor Behring has been granted a patent as the inventor of diphtheria antitoxin will be received by the medical profession with feelings of keen disappointment. The profession of this country has always sternly discountenanced any attempt on the part of its members to make scientific achievements opportunities of personal profit. Such discoveries as the medical profession have made have been fully and freely donated to the service of suffering humanity. Professor Behring's claim to be the exclusive inventor of antitoxin not only indicates a spirit of commercialism which does its possessor no credit, but it displays a disposition to assume credit for the labors of others and to make of these an occasion of personal gain which can only indicate a high degree of moral perversity.

Professor Behring claims as his invention: 1. A process "of producing diphtheria antitoxin, which consists in inoculating horses or other animals capable of being infected with repeated doses of diphtheria poison or living diphtheria bacilli of gradually increasing quantity and strength so as to immunize them and form in the blood a counter-poison for destroying the poison secreted by said bacilli, drawing off the blood from said animals, separating the serum from the blood corpuscles, and concentrating the former for use substantially as set forth.

"2. As a new substance, diphtheria antitoxin, consisting of the concentrated serum of the blood of animals treated with diphtheria poison and having the characteristic of immunizing test animals against infection with diphtheria, and curing them when artificially infected with diphtheria, said serum containing a counter-poison having the property of destroying the poison secreted by the diphtheria bacilli substantially as set forth."

It is almost superfluous to point out to any well-informed reader that Behring's claim to have done this is as preposterous as it is unjust. The principles upon which immunization to diphtheria was finally achieved were of gradual growth, the outcome of researches by thousands of

untiring workers. The foundation of the work was undoubtedly laid by Pasteur in his method of immunizing against chicken cholera and anthrax. So long ago as 1887 Sewall immunized pigeons against the poison of rattlesnakes. He says, with genuine modesty, his work was undertaken with the hope that it might form a worthy contribution to the theory of prophylaxis, and it was a most worthy contribution. In 1887 Roux and Chamberland immunized animals against malignant œdema with sterilized anthrax cultures. In 1890, the same year in which Behring and Kitasato published their results in immunizing animals against diphtheria and tetanus, Fraenkel published his results in diphtheria after treating animals by weakened germs and filtered cultures. In the clinical uses of the serum Aronson's name must not be forgotten. His serum was first used in the Children's Hospital at Berlin in 1894. The serum of Roux had been used in one of the hospitals of Paris a month earlier than Aronson's in Germany. Emerich and Aronson both dispute the priority of Behring, and the French Academy of Sciences awarded their prize for antitoxin jointly to Behring and Roux, a fact which very clearly denotes the difficulty of estimating priority of merit in a scientific struggle in which the numerous competitors were so equally distinguished.

The principle which lies at the foundation of the invention of diphtheria antitoxin, and that which underlies all serum therapeutics, is that the blood of immune animals can be used in the treatment of others. Behring did not discover this principle, and in its application he was undoubtedly anticipated by the Japanese workers. If to any single man must be ascribed the distinction of being the inventor and discoverer of the beneficent principle of immunization, the honor belongs to the immortal Pasteur.

The manufacture of antitoxin has been carried out for many years in England, France, Switzerland, Italy, Russia, and Japan, and in these countries no one has had the temerity to attempt to control exclusively its manufacture. In this country it is made by five Boards of Health and by several manufacturing firms. In this country alone has an attempt been made to monopolize its production, it being admitted that elsewhere the claims of any patentee are inadmissible.

If Professor Behring admits any merit in the work of his predecessors and contemporaries, his claim to be the exclusive inventor of diphtheria antitoxin is in contravention of all the ethics of a scientist's career. His claim is an offence against common morality. Had Simpson patented

chloroform anesthesia, or had Lister patented antiseptic surgery, the world would have had two selfish empirics, and lost two medical heroes. If Behring, by the righteous judgment of mankind, can be adjudged sole and undisputed inventor of antitoxin, he has a place in the Temple of Fame for achieving the most beneficent discovery of modern times. It remains to be seen whether the temptation to be rich will overcome his ambition to be great, and whether for a tinsel crown he will barter a diadem of everlasting renown.—Dr. Frederick Mann, in *Medical Age*.

The Charge Against a Publisher.—The following peculiar proceedings were held in a London Court in regard to the book of an eminent and esteemed scientific contributor to this journal. Sir John Bridge's censorious remarks to the effect that attempts at excuse were out of order, are amazing. Vindication and extenuation are the purposes of defence in every cause. But let the reader read for himself.

At Bow-street, London, Sir John Bridge sat specially in the Extradition Court for the further hearing of the charge against George Bedborough, publisher, of John-street, Bedford-row, of publishing an obscene libel in a book with the intention of corrupting the morals of her Majesty's subjects. The book, which is published by the University Press (Limited), is the first of a series entitled "Studies in the Psychology of Sex," by Mr. Havelock Ellis, the editor of the Contemporary Series.

Mr. Blanchard Wontner prosecuted on behalf of the Commissioner of Police; Mr. Avory defended; and Mr. R. Humphreys held a watching brief on behalf of Dr. Ellis, the author of the book.

On the application of Mr. Avory, who explained that he had only been instructed for about half an hour, and had had no opportunity of reading the book, it was agreed that only formal evidence should be called on this occasion, and that the opening should be deferred until the next hearing.

Mr. Wontner said that there was one witness who had come from Liverpool, and whom he should like to call at once.

Frederick William Hardesty, who said he was a clerk, aged eighteen, of Windsor-road, Liverpool, stated that in March last he saw an advertisement in the "University Magazine" of a book entitled, "The Blight of Respectability." He wrote to the University Press for a copy of this book, enclosing 2s 6d. He afterwards received a copy of the book to which the charge related.

Sir John Bridge: Did you read it?

Witness: No; the pages were uncut. The witness continued that he returned the book to the University Press, Watford, with a letter asking that the postage, 3d. should be refunded to him. In reply he received a letter, but he could not say how it was signed.

Mr. Avory objected that this evidence bore no relation to the prisoner.

Mr. Wontner said that he should prove that the prisoner, in fact, had the closest connection with this business at Watford. On this understanding the witness' evidence was continued.

The witness said that the letter enclosed five stamps, and the book he had ordered was sent, with an apology for the error in sending the other. He could not say who signed the letter.

Sir John Bridge: Did you show the book sent you in error to any of your friends?

Witness: Yes; to the Rev. Martin Cave, the curate of my parish.

Mr. Humphreys said that he wished to state that the author of the series was present in court, and he took all responsibility for the authorship of the work. Of course, he knew nothing of the other matters mentioned this morning.

Sir John Bridge replied that this had nothing to do with the present case. A medical man might be the author of such a book without its being considered wrong, but it was different for another man to publish such works amongst all sorts of people.

Mr. Wontner said that this might be a case when "Qui s'excuse, s'accuse."

Mr. Humphreys:Oh, no, no!

Sir John Bridge: The less attempts at excuse we have here the better.

Detective-inspector Sweeney, recalled, said that on searching the defendant's bed-room at John-street he found the two photographic scrap books produced, containing obscene photographs.

Mr. Avory: That is, in the witness' opinion.

Cross-examined: There was nothing to show that these or any such books were offered for sale. There was nothing on the outer door of the house to show that anything was sold there.

Mr. Avory asked the magistrate if he saw any reason to alter his decision in regard to bail. He would say at once

that with regard to this book the defence would be on a matter of principle, that this book was not an obscene work, but a scientific work.

Bail was allowed as before, and the prisoner remanded.

Dr. Edward C. Seguin and His Work.—Seguin, more than any other neurologist in America of his day, understood the differentiation and management of spinal lesions. Spastic paraplegia was especially elucidated by him. He was clearer than all other writers, the world over, on trophic lesions. His contribution on the relation between trophic lesions and diseases of the nervous system in September, 1888, the referee's paper at the joint meeting of the American Physicians and American Physiological Association was a classical, critical and original production on the subject. The conclusion of that paper, that disease of the nervous system produces true trophic lesions when it interferes with the associated or interdependent life of continuous tissues, is now current scientific conviction. He was at that time President of the American Neurological Association.

He was a corresponding member at that time also of the Sociêté de Biologie, of Paris, of the Verein Fuer Inner Medicin, of Berlin. He early illumined the subjects of cerebral localization, shortly after Hitzig, Ferrier, and along with Hughlings-Jackson. He also added light to the new subject of aphasia in the earlier days of his career. With Hammond he early advocated the use of a large dose of iodides.

He sounded timely alarm about the use of bromides in other than epileptic conditions, and twenty-one years ago wrote a lucid and instructive treatise on the therapeutics of the nervous system. Seguin made an indelible impress on neurology and more than any other man of his day promoted its advance in America; with Hammond and Brown-Sequard he belonged to that brilliant trinity that founded American neurology. For the past several years, his health has been declining so that he could do no work, but he has done work that will live after him. Seguin was a successful neurotherapeutist, with faith in treatment, especially electrical.

He was a close observer, a deep delving investigator in his chosen field of medical work, clear and convincing in his portrayals of neuro-symptomatology, pathology and treatment in the lecture-room by which he made in America many bright enthusiasts in neurology, some of whom, following his illustrious footsteps, have gone beyond him in the pathways he pointed out.

For nearly a decade disease has enchained him and shackled his efforts, until time broke his fetters. He never murmured at his fate, but it was pitiful to read the uncomplaining note, in which he tersely said a few years back, responsive to our request, "I can do no more work." He loved to work and worked much and well when he could. But now his work is done. He has gone to join the Immortals.

A Veterinarian Lieutenant Colonel and Medical Director, U. S. A.—A veterinary surgeon whose clinical experience had been confined almost if not entirely exclusively to animals up to the time of his appointment as surgeon and medical director of the camp at Chicamauga, and who was later made surgeon-in-chief of a corps of the American army in Porto Rico has very properly been relieved from duty and ordered to report to Surgeon General Stemberg for other duty. This very proper order was followed by his resignation. But why was he ever appointed to any position higher than subordinate assistant physician in a general military hospital where under subordinate service to competent military clinicians, he might have gained the clinical experience which would have justified him to be assuming the grave responsibility he took or suffered to be put upon him? Who appointed Haid Koper, and why was he appointed?

What sort of *esprit de corps* can be established or maintained in the medical staff of an army before the enemy or in camp with such a man placed in authority over military and civil medical men of experience and skill acquired in treating human beings? What might such a man know of camp or field hygiene for men, though he might know it all, in civil life, for horses or mules? Neither the dogs of war nor the men behind them are, by previous experience, in his line.

The appointment of such a man, competent though he be as a veterinary surgeon, to the medical rank of Lieutenant-Colonel of volunteers and Medical Director of a great army camp with lives at stake and to be sacrificed through sins of sanitary omission, is one of Talleyrand's blunders which is worse than a crime, and to transfer such a man to Porto Rico, as surgeon-in-chief, though nothing might be said to his detriment as a man, to take active part in a rush campaign, looks like the beginning of that vicious rottenness in appointments to American army positions foreshadowing dissolution.

Suppose Porto Rico had not yielded promptly without

fighting as it did, what would have been the fate of our men there with the emergency for men of military medical caliber and experience suddenly thrown upon it, the sanitation of men, not horses, and medical supply for large numbers and the medical resources of a rushing precipitate fight suddenly demanded, what previous preparation by experience would a professor of a veterinary college have for such urgent and extensive demand on military medical, surgical and hygienic skill? Did the appointing power think a veterinary surgeon was the man for veteran soldiers? But there were volunteers among them.

An Unjust Claim Justly Contested.—Messrs. Parke, Davis & Company's vigorous, manly and just protest against Behring's absurd assumption to priority in the use of Antitoxin and the outrageously unjust and flagrantly ignorant, if not venal, decision of the Washington Board of Patent Appeals, has reached us.

Professional gratitude toward this firm for coming at this juncture to the rescue of popular and professional rights in the premises, should be universal. We cordially applaud them. That any member of the Medical profession, at this late day, when investigators all over this country and abroad have so popularized this process that it is almost as common as vaccination, should claim and actually secure a patent upon it, seems unaccountable.

The St. Louis Board of Health and four other American Boards of Health, have been making and using diphtheria antitoxin for years and giving it free to the profession and so likewise have other Boards of Health, a proceeding of questionable propriety and right, but a philanthropic custom, which it is too late now to interdict by patent claim of priority. A popular custom can not be lawfully patented. Behring and his business representative have begun business too late. Behring might as well claim a patent-right on sauerkraut and as justly "cabbage" the process of its production.

This unheard of proceeding excites in us editorial indignation. We protest against it in the name of justice, humanity and the common rights of science.

This new German invasion of America's and Humanity's rights should receive vigorous and timely repulse.

The astonishing claim of Professor Behring and the cool assurance of the Hoechst Farbwerke Co. in claiming prior and exclusive property in this now common possession of the medical and scientific world and even of the world's

people excites our condemnation beyond words to express in either German or English.

They can do nothing more than label their own antitoxin and sell it as such. They might as well seek to monopolize the albumen. The Parke-Davis process is quite as good, better known, earlier put on the American market, quite as reliable and comes from nearer home. Our German friends seem to want the earth. In science they would seem to claim all. Nothing to be regarded genuine without the German brand—nothing sold without the mark "made in Germany" on it.

Bromidia.—The following bit of information in regard to Bromidia that was written for Battle & Co. by an eminent Laryngologist of St. Louis is something the profession ought to know. He wishes them not to use his name in the publication, so they send it to us just as it is, asking us to print it as an item of information, use it as an editorial or put Battle & Co's name at the bottom of it. The information was news to Messrs. Battle & Co., and they think it will be news to most of our readers:

"The hypnotic effect of Bromidia does not by any means represent the sole benefit to be derived from this preparation, but it meets, in a very perfect manner, many other indications involving hyperaesthesia of nerve tips and over-excitability of spinal cord. In doses of one-half teaspoonful, given every four hours for two days, it will so benumb the sensory nerve tips of the buccal cavity that dentists can take impressions of the mouth, fit in rubber dams, etc., that would otherwise be impossible on account of the gagging peculiar to some patients. In the hands of the medical practitioner, given in half-teaspoonful doses every four hours, will make life endurable for hay-fever patients during the months of August and September. A teaspoonful will completely quiet the paroxysmal pains following childbirth or miscarriage without in any way interfering with uterine contractions."

The above contains enough misinformation to do an infinite deal of harm with a most excellent hypnotic combination. To put Bromidia in the hands of dentists for administration in half teaspoonful doses every four hours for two days, and in Hay Fever patients for use in the same way would soon bring this good hypnotic blend into disrepute. Bed-time and the recumbent position are the only proper time and place for hypnotics containing chloral except in timely full doses for anti-paroxysmal effect where indicated. It is not objectionable in Hay Fever in full doses

when the time has come to stop the paroxysm nor in the after pains or second stage of labor.

Quebec Medico-Psychological Society.—The following physicians attached to the insane asylums of the Province of Quebec held a preliminary meeting on the 16th of February last, at St. Jean de Dieu Asylum, Longue-Pointe, and organized themselves into a society to be known as the "Quebec Medico-Psychological Society," for the advancement of the speciality: Arthur Vallée, medical superintendent of the Quebec Lunatic Asylum; T. J. W. Burgess, medical superintendent of the Protestant Hospital for the Insane; E. J. Bourque, Physician-in-chief; Geo. Villeneuve, Medical Superintendent; F. E. Devlin, Assist. Superintendent, F. X. Perreault, A. J. Prieur, C. Laviolette, and E. P. Chagnon, Assistant Physicians of the St. Jean de Dieu Lunatic Asylum, Longue-Pointe.

The officers elected for the years 1898-99 were:

President, Arthur Vallée, M. D.; Vice-President, T. J. W. Burgess, M. D., Verdun; Secretary, E. P. Chagnon, M. D., Longue-Pointe.

The first meeting of the Society was held at St. Jean de Dieu Asylum, on July 14th, 1898, at which the following new members were elected: A. Marois, Assistant Superintendent, A. Bélanger and C. S. Roy, Assistant Physicians to Quebec Insane Asylum; L. J. O. Sirois, Physician to St. Ferdinand d'Halifax Asylum, and J. V. Anglin, Assistant Physician to the Protestant Hospital for the Insane, Verdun.

The following papers were read: "On the Admission of Patients to Insane Asylums; Form of Medical Certificate" by Dr. Villeneuve; "Case of Diabetes Treated by Protiine," by Dr. Devlin; "Rubeoliform Eruptions Produced by Sulphonal," by Dr. Burgess; "A Case of Sitiophobia Cured by Sulphonal," by Dr. A. Vallée; "Foreign Body in the Intestine in a Case of Long Standing Dementia; Death, Autopsy," by Dr. Burgess, and "The Influence of Traumatism on Certain Mental Affections," by Dr. A. Vallée.

The next regular meeting will be held during October at the Protestant Hospital for the Insane, at Verdun.

William Harvey as Seen in His Day.—"He (William Harvey) was not tall; but of the lowest stature, round-faced, olivaster complexion; little eie, round, very black, full of spirit; his haire was black as a raven, but quite white twenty yeares before he dyed. I have heard him say, that after his booke of the Circulation of the Blood came

out, that he fell mightily in his practice, and that 'twas beleeved by the vulgar that he was crack-brained; and all the physicians were against his opinion, and envyed him; many wrote against him. With much adoe at last, in about twenty or thirty yeares time, it was recieved in all the universities in the world; and, as Mr. Hobbes says in his booke 'De Corpore,' *he is the only man, perhaps, that ever lived to see his owne doctrine established in his lifetime.* He was much and often troubled with the gowte, and his way of cure was thus: he would then sitt with his legges bare, if it were frost, on the leads of Cockaine house, putt them into a payle of water, till he was almost dead with cold, and betake himselfe to his stove, and so 'twas gonne. He was hott-headed, and his thoughts working would many times keepe him from sleepinge; he told me that then his way was to rise out of bed and walke about his chamber in his shirt till he was pretty coole, till he began to have a horror, and then returne to bed, and sleepe very comfortably."—Aubrey, "*Brief Lives.*"

Status of the Army Medical Staff.—In the *Arch. Clin. de Bordeaux* for July, Professor Le Dantec of the French navy, says: "The real enemy is the climate, and none but natives or negroes should occupy the lowlands. White troops should never be called upon for garrison duty or work in hot countries except in elevated regions." He quotes the popular saying: "In the tropics, every white man who tills the soil digs his own grave"; and the Madagascar boast, "Our country need not fear invasion, as it is defended by General Tayo, the fever." In the northern hemisphere, he adds, there is no country exempt from paludism south of the sixtieth parallel, while in the southern hemisphere all the countries south of the thirtieth parallel are free from it, *i. e.*, persons coming to reside there are not affected with intermittent fever, including La Plata, Patagonia, New Zealand and even New Caledonia. While stationed at Bourail, the chief agricultural center of the French colony in New Caledonia, he had no call for a single grain of quinin during the entire year. He considers the terms paludism, tellurism, malarial infection, etc., unscientific and suggests "Laveran's disease" as the most appropriate term, and the Professor thus concludes, "The medical officer should be the commander-in-chief in campaigns in hot countries."

Mortality in the Medical Corps.—The official records of the Civil War show that no less than eighty-

four medical officers in the Federal army alone were killed by shot or shell on the battle field. The total, including those who died from disease, or were invalided from exposure and privation while on duty, reached up into the thousands. Excluding privates in the ranks, and non-commissioned officers, no such proportionate mortality is to be found in any other single grade of military service. A much higher and more self-sacrificing type of courage is required of the "non-combatant" in facing death, than is demanded of the armed soldier in the thick of the fight in whom the "frenzy of mad battle" acts as an exhilarant and intoxicant. There are Hobsons in the medical corps—many of them—of both army and navy.—*N. Y. Polyclinic.*

True Americanism.—*The National Druggist*, catching the infection of the horn in patriotic vein, thus lauds the Antikamnia Chemical Company: At the present time, when a vast wave of patriotism is rolling over the land, making the North and the South, the East and the West as one band of brothers by its magic influence, the Antikamnia Chemical Company, of St. Louis, in all of its advertising matter, whether through the journals or by circular, takes particular pains to impress upon physicians and pharmacists that its goods are made in America, by Americans, and for American use. This enterprising Company realizes that the words "made in Germany" or "made in France" no longer possess the influence and meaning they once had. The people of this country no longer scorn or underrate the products of their own native laboratories and work shops.

A Vacant Instructorship.—We are informed that the position of Instructor in Histology at the Harvard Medical School is vacant. The appointment is an annual one with a salary of four hundred dollars. The holder is expected to give twenty hours a week to the work of the Laboratory and to devote the remainder of the time to original investigation in Histology or Embryology under the supervision of the senior officers of the department. Applications should be addressed at once to Prof. Chas. S. Minot, Harvard Medical School, Boston, Mass. At this salary this position should remain vacant. Medicine can not be exalted by such service for such inadequate remuneration. The profession by such services for such pay is kept on a plane too near that of charity.

The Dangerous Ovary.—Ferré and Bestion (*vide* selections ALIENIST AND NEUROLOGIST), reporting on the influence of ovary juice, find that males become intoxicated

and die from large doses, a whole train of startling symptoms preceding the fatality, *e. g.*, hypothermia, genital excitation, ejaculation, tremors and paralysis. Thus physiological experiment confirms the long recognized potency of ovarian influence on man. Man has been the recorded victim of psychical toxicity of ovarian origin from time memorial but the potently poisonous power, intoxicating and paralyzing, of the ovary, is now proven beyond peradventure by these late researches of Ferré and Bestion.

The American Gynaecological and Obstetrical Journal for August, 1898, contained an important editorial entitled, "The American Medical Press." We think this editorial is in accord with the sentiments of all who would wish well for the medical profession. The editor, Dr. Emmett says: "The value of the press to us lies in its control, its universal and absolute control, by ourselves, by medical men who are bound by professional obligations, by that common interest which binds us all," and in the proper support of medically owned and conducted journals by medical men to the exclusion of all others. We are in hearty accord with Dr. Emmet.

The Answer of Professor E. Behring to his Critics.—The answer of Professor Behring to his critics in the *Deutsche medicinische Wochenschrift* of September 15th relative to the patent which the Washington authorities have recently granted him for his diphtheria-antitoxin does not answer their arraignment satisfactorily and the *Philadelphia Medical Journal* sits down on the commercial and avaricious professor in a well-merited manner. Behring claims to be beyond criticism because he has gone without the pale of the profession.

Micro-organism and Portal Cirrhosis.—The *Montreal Medical Journal* contains a preliminary communication by J. G. Adami, Professor of Pathology in McGill University, Montreal, "Upon the Existence of a Minute Micro-organism Associated with Cases of Progressive Portal Cirrhosis." This is a most important discovery likely to lead to an entirely new view regarding the aetiology and pathology of fibrosis in general. A complete account of his discovery appeared in the August number of the *Montreal Medical Journal.*

Dr. Alex. L. Hodgdon, of Baltimore, has recently been elected to the Chair of Nervous Diseases and Diseases of the Mind of the Maryland Medical College.

Langsdale's Lancet has gone into other hands, and although a lively publication under Langsdale's management it will not languish under the new regime. Henceforth it will appear as the *Kansas City Lancet*, edited by Dr. John Punton and three other Kansas City doctors, who each and all can thrust the lance of medical literary criticism with discernment and skill. And the *Kansas City Lancet* will cut medical error and folly as keenly as ever.

The Peacock Chemical Company of St. Louis, Mo., patriotically announces to its customers that it will stamp its goods without raising its price to the retailer or consumer.

IN MEMORIAM.

DR. WILLIAM PEPPER, professor of the Principles and Practice of Medicine and of Clinical Medicine, and late provost in the University of Pennsylvania, died suddenly on July 28, 1898, at Pleasanton, California, where he had gone for rest from the multiplicity of tasks and responsibilities with which he had so long labored. His sudden demise is mourned, not only in the immediate circles in which his activities were most intimately known, but beyond those limits far and wide there is a feeling of public bereavement and a disposition to pay an appropriate tribute to his career.

Dr. Pepper was born in Philadelphia on August 21, 1843, the son of the distinguished Dr. William Pepper, who occupied the chair of Theory and Practice of Medicine in the University from 1860 to 1864, and who died in October, 1864, in the 55th year of his age. The son was graduated from the College Department of the University in 1862, and from the Medical Department in 1864. After receiving his degree he devoted himself especially to the study of clinical medicine and pathology, and in 1868, when morbid anatomy was made a separate branch in the University, he was elected to the lectureship. In 1870 he became lecturer on Clinical Medicine, and this title he retained until 1876, when he was given that of professor of Clinical Medicine, which he held until 1884, when he succeeded Dr. Alfred Stillé in the chair of the Theory and Practice of Medicine. His ability as a teacher and clinician is well known. In 1881 he became provost of the University, which post he held for thirteen years. The progress which the institution made under his direction is without a parallel in the history of education in America.

In 1895, Dr. Pepper built and partially endowed the William Pepper Laboratory of Clinical Medicine as a memorial for his father.

To Dr. Pepper more than any one else belongs the credit of the impetus which has been given to higher medical education in this country, he having prompted the University to take the lead in establishing a four years' course of study.

Notwithstanding his exacting duties as administrator, organizer, practicing physician, and man of affairs, Dr. Pepper found time for a vast amount of literary work. In 1870 he founded the *Medical Times*. His most important works are: a "System of Medicine by American Authors," published in 1885-86; "Diseases of Children," written in collaboration with Dr. John F. Meigs; and the "American Text-Book of the Theory and Practice of Medicine," a large portion of which was contributed by Dr. Pepper himself.

To Dr. Pepper belongs the credit of establishing the system of commercial museums, which had as their nucleus a collection of fabrics and products obtained from foreign exhibitors at the World's Fair. It was his idea to have the Philadelphia commercial museums placed on a tract of land adjoining that occupied by the Museum of Science and Art of the University, so that there should be in one place a vast collection rivalling the far-famed South Kensington Museums, and making Philadelphia the art centre of the western hemisphere.

Other important educational movements owe their success very largely to the untiring devotion of Dr. Pepper, *viz.*, the popular lecture courses at the University, the University Extension, and the Free Library of Philadelphia. The growth of the last has been phenomenal, and already its circulation is larger than any other library in the United States.

He was medical director of the Centennial Exposition in 1876, one of the founders of the Museum and School of Industrial Art, a member of the College of Physicians, American Philosophical Society and Academy of Natural Sciences, president of the Pan-American Medical Congress, and of the Commercial Museum.

In the death of Dr. Pepper the community has lost one of its foremost citizens and philanthropists, a skillful physician, a successful educator, and a leader in every enterprise that was intended to promote the common weal.

REVIEWS, BOOK NOTICES, ETC.

PRACTICAL URANALYSIS AND URINARY DIAGNOSIS. A Manual for the use of Physicians, Surgeons and Students. By Charles W. Purdy, M. D., LL.D., (Queen's University); Fellow of the Royal College of Physicians and Surgeons, Kingston; Professor of Clinical Medicine at the Chicago Post-Graduate Medical School. Author of "Bright's Disease and Allied Affections of the Kidneys;" also of "Diabetes: Its Causes, Symptoms, and Treatment." Fourth, Revised Edition. With Numerous Illustrations, including Photo-engravings and Colored Plates. In one Crown Octavo Volume, 365 pages, bound in Extra Cloth, $2.50 net. The F. A. Davis Co., Publishers, 1914-16 Cherry St., Philadelphia; 117 W. Forty-second St., New York City; 9 Lakeside Building, 218-220 S. Clark St., Chicago, Ill.

This is, as its title implies, a practical manual of Uranalysis and Diagnosis. And the author, Dr. Purdy, is well qualified for the task he has undertaken and has performed it well. The book will give the practicing physician satisfaction. The book is handsomely bound, and the text and illustrations are done in the attractive style of the well-known publishers.

PRIMER OF PSYCHOLOGY AND MENTAL DISEASE. By C. B. Burr, M. D., Medical Director of Oak Grove Hospital for Nervous and Mental Diseases, Flint, Mich.

We acknowledge the receipt of this primer for use in training schools for attendants and nurses and in medical classes, which has reached its second edition, and can only reiterate the good opinion expressed in reviewing the first edition.

MEDICAL LIBRARIES. We have received No. 5-6, Vol. I, of this Journal, which is devoted to the Interests of Medical Libraries and Bibliography. C. D. Spivak, M. D., Editor, 3 Denison Building, Denver, Colorado. Price 50c Per Annum. Foreign Subscription, $1.

CLINICAL LECTURES ON MENTAL DISEASES. By Thomas S. Clouston, M. D., Lecturer on Mental Diseases in the University of Edinburgh. New (5th) edition. Crown 8vo., 750 pages, with 19 full-page colored plates. Cloth, $4.25, *net*. Lea Brothers & Co., Publishers, Philadelphia and New York.

Clouston comes again with a fifth edition of his Clinical Lectures on Mental Diseases. A beautiful frontispiece showing the cortex of the brain in advanced general paralysis fronts the title page of this excellent book on

clinical psychiatry. The distinguished author says some things so pertinent to the times with reference to the study of diseases of the brain by the general practitioner and to the improvements in this edition, appearing so soon after the fourth, that we reproduce them.

The study of Mental Disease has now entered on a new era. It has, for the first time, become compulsory on all medical students in Great Britain. This should vivify and stimulate the teaching of it, and affect the study and investigation of the subject in ways and degrees as yet unknown to us. Fortunately, the subject lends itself to teaching in which ever intelligent student will be more or less interested. No subject in his course will keep the average student so mentally alert as a good clinical lecture on mental diseases, well illustrated by patients. Teachers will be enabled now, more than ever, to present to students, in addition to the details of our subject, the relationship of the disturbed mental functions of the brain to General Medicine and Surgery, and so prevent our department from sinking into a specialty in the bad sense. Mind and brain dominate all else in the organism; and their diseases, if properly studied, can never be narrowing.

The author has especially directed attention to the important therapeutic measure of using thyroid extract in certain cases of insanity, in the way devised by Dr. Lewis Bruce, and has taken advantage of the orginal pathological work done in the Scottish Asylums' pathological laboratory, by Dr. W. F. Robertson, under whose direction the new plates XVI, XVII, XVIII and XIX, which illustrate the recently discovered facts about chromatolysis, atrophies, and hypertrophies in the neurons, have been prepared.

A New Operation for the Radical Treatment of Cancer of the Cervix, Consisting of the Removal of the Uterus and Vaginia en Masse by the Suprapubic Method: with Report of a Case. By X. O. Werder, M. D., Professor of Gynecology, Western Pennsylvania Medical College, Medical Department Western University of Pennsylvania; Gynecologist to Mercy Hospital, Pittsburg; Fellow of American Association of Obstetricians and Gynecologists, etc., Pittsburg, Pa.

Recherches Cliniques et Therapeutiques sur L'Epilepsie, L'Hysterie et L'Idiotie. Compte rendu du service des enfants idiots, epileptiques et arrieres de Bicetre pendant l'Annie 1897. Par Bourneville, avec la collaboration de Mm. Dardel, Jacoment, Mettetal, Noir (Jr.), Philippe, Rellay, Schwartz, Tissier et Wuillamier. Volume XVIII. Avec 18 figures dans le texte et 20 plancheg. Publication du Progres Medical, 14 Rue des Carmes, Paris, France.

An Address on the Occasion of the Presentation by Members of his Family of a Portrait of Dr. Thomas Story Kirkbride to the College of Physicians, Philadelphia. By John B. Chapin, M. D. LL.D., Physician-in-Chief, Pennsylvania Hospital for the Insane; Fellow of the College of Physicians, etc.

Three Years of Serum Therapy in Tuberculosis. By J. R. Lemen, M. D., Professor of Physical Diagnosis and Therapeutics in the Marion Sims College of Medicine; Consulting Physician, Diseases of the Heart and Lungs, in the Rebekah Hospital and the German Hospital, St. Louis.

The Pharmacology and Therapeutics of Kryofine. By George Frank Butler, Ph. G., M. D., Professor of Medical and Clinical Medicine, College of Physicians and Surgeons, Medical Department of the Illinois State University, etc., Chicago.

Strangulated Hernia in an Infant Thirty-four Days Old.—Operation; Recovery. By Charles C. Allison, M. D., Professor of Surgical Anatomy, Rectal and Genito-Urinary Surgery, Omaha Medical College, Surgeon to the Presbyterian Hospital. etc., Omaha, Neb.

Beiträge zur Pathologie und Pathologischen Anatomie des Centralnervensystems mit Bemerkungen zur normalen Anatomie desselben, mit 205 Abbildungen. Von Dr. Arnold Pick, o ō Professor an der deutschen Universität in Prag.

The Diagnostic Importance of Fever in Late Syphilis. By J. H. Musser, M.D., Assistant Professor of Clinical Medicine. University of Pennsylvania; Physician to the Philadelphia and the Presbyterian Hospitals, Philadelphia, Pa.

Reflex Neuroses and the Neuropath. By Hugh T. Patrick, M. D., Professor of Neurology in the Chicago Policlinic; Associate Professor of Nervous Diseases, Northwestern University Medical School, etc., Chicago, Ill.

The Aseptic Animal Suture: Its Place in Surgery. By Henry O. Marcy, A. M., M. D., LL.D., Surgeon to the Cambridge Hospital for Women; late President of the American Medical Association, etc., Boston, U. S. A.

Peritoneal Tuberculosis. By Charles C. Allison, M. D., Professor of Surgical Anatomy, Rectal and Genito-Urinary Surgery, Omaha Medical College, Surgeon to the Presbyterian Hospital, etc., Omaha, Neb.

Proceedings of the Tenth Annual Session of the Association of American Anatomists, held at Cornell University, Ithaca, N. Y., Dec. 28 to 30, 1897. To which is appended a List of Members.

A Preliminary Report on a Method of Overcoming High Resistance in Crookes' Tubes; a Possible Step Towards Maximum Radiance. By Wm. W. Graves, M. D., St. Louis, Mo.

Two Interesting Cases of Intestinal Resection with End-to-End Anastomosis by means of the Murphy Button, with Recovery. By X. O. Werder, M. D., of Pittsburg, Pa.

Some Points in the Diagnosis of Morphia Addiction. By Stephen Lett, M. D., M.C.P. & S., Ont., Medical Superintendent of the Homewood Retreat, Guelph, Ont.

Symposium on the Pathology of the Diseases of the Cardio-Vascular System. The Myocardium. J. H. Musser, M. D. and J. D. Steele, M. D., Philadelphia.

A Case of Chorea with Acute Delirium, Occurring in the Course of Scarlatinal Bright's Disease. By Charles W. Burr, M. D., Philadelphia.

An Additional Case of Congenital Microphthalmos. By Cassius D. Wescott, M. D., Instructor in Ophthalmology at Rush Medical College, etc., Chicago, Ill.

The Histological Basis of the Neuron Theory. By David I. Wolfstein, M. D., Lecturer on Pathology, Medical College of Ohio (University of Cincinnati).

Chemically Pure Hypophosphites, Therapeutical Indications with Clinical Data,. By R. W. Gardner, Pharmaceutical Chemist, New York. Fifteenth Edition.

Epidemic Cerebro-Spinal Meningitis and its Relation to other forms of Meningitis. A Report of the State Board of Health of Massachusetts.

Sleeplessness: Its Cause and Treatment. By Elmore S. Pettyjohn, M. D., Medical Superintendent of the Alma, etc., Alma, Michigan.

Difficulties in Determining the Cause of Coma. By J. T. Eskridge, M. D., Neurologist to the St. Luke's Hospital, Denver, Colo.

Principal Poisonous Plants of the United States. U. S. Department of Agriculture. Division of Botany. By V. K. Chesnut.

The Prevention of Diseases now Preying upon the Medical Profession. By Leartus Connor, A. M., M. D., Detroit, Michigan.

A Rapid Treatment of Chancroid and Ulcerative Syphilitic Lesions. B A. H. Ohmann-Dumesnil, A. M., M. D., St. Louis.

The Advantage of Physical Education as a Prevention of Disease. By Charles Denison, A. M., M. D., Denver, Colorado.

Diseases of the Lachrymal Passages—Their Causes and Management. By Leartus Connor, A. M.. M. D., Detroit, Mich.

The Sanitary Redemption of Havana: The Need and the Means. By George Homan, M. D., St. Louis, Mo.

Tonic and Spasmodic Intestinal Contractions with Report of Cases. By X. O. Werder, M. D., Pittsburg, Pa.

Radiance Approaching the Maximum, its Production and Uses. By Wm. W. Graves, M. D., St. Louis, Mo.

The Mimicry of Tumor of the Brain by Chronic Nephritis. By Charles W. Burr, M. D., of Philadelphia.

What Should the General Practitioner Know About the Eye? By Cassius D. Wescott, M. D., Chicago, Ill.

The Medical and Psychological Aspects of the Luetgert Case. By J. Sanderson Christison, M. D.

Appendicitis Complicating Ovarian Cyst and Simulating Torsion of the Pedicle, with Three Cases.

Progressive Loss of Brain-Weight in Dementia. By Warren L. Babcock, M. D., Ogdensburg, N. Y.

Anesthesia of the Trunk in Locomotor Ataxia. By Charles W. Burr, M. D., Philadelphia, Pa.

The Value of Surgery in Nervous Disease. By Henry Waldo Coe, M. D., Portland, Ore.

Partial Report of Eight Hundred Cases of Labor. By H. S. Crossen, M. D., St. Louis.

The Treatment of Chronic Enteritis. By E. P. Hershey, C. E., M. D., Denver, Col.

Acute Chloral Dementia Simulating Paretic Dementia. By Henry Waldo Coe, M. D.

Vaginal Hysterectomy for Prolapsus. By H. S. Crossen, M. D., St. Louis, Mo.

Gardner's Syrup of Hydriodic Acid. By R. W. Gardner, Pharmaceutical Chemist.

The Essential of the Art of Medicine. By J. H. Musser, M. D., Philadelphia.

Exercise in Exophthalmic Goitre. By Henry Waldo Coe, M. D., Portland, Ore.

Hysteria in Children. By Charles W. Burr, M. D., Philadelphia, Pa.

How Education Fails. By J. T. Searcy, M. D., Tuscaloosa, Ala.

Surgery of the Lung. By J. B. Murphy, M. D., Chicago, Ill.

Renal Calculus. By J. H. Musser, M. D., Philadelphia.